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Childhood Society

FOR THE SCIENTIFIC STUDY OF THE MENTAL AND PHYSICAL CONDITIONS OF CHILDREN.

President:
RT. HON. EARL EGERTON OF TATTON.

TRANSACTIONS, VOL. IV.,

BEING

THE PROCEEDINGS OF THE SOCIETY FOR THE YEARS 1906 & 1907.

PRICE HALF-A-CROWN.

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W. J. DURRIE MULFORD.

Offices:
PARKES MUSEUM, MARGARET STREET, LONDON, W.

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The Society is not responsible for the facts and opinions given by the Authors.

The Committee regret that the funds of the Society have not allowed of all the Lectures and Papers being published, and those appearing in this Volume have necessarily been abbreviated for want of space.

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The Childhood Society

FOR THE SCIENTIFIC STUDY OF THE MENTAL AND PHYSICAL CONDITIONS OF CHILDREN.

Concluding Note on the Work of the Society,

BY

SIR EDWARD BRABROOK, C.B., V.-P.S.A.,

Vice-President and Chairman of the Council.

THE present volume of Transactions of the Childhood Society completes the record of the Society's activities under that name. It records also the proceedings by which it, in conjunction with the London branch of the British Child Study Association, has adopted the name of the Child Study Society London, and become a constituent society of the central body which combines and co-ordinates the working Child Study Societies in various parts of the United Kingdom, and collects together the representatives of those Societies in an annual conference, at which they profit by each other's experience, and stimulate each other to zeal in their good work. The transactions of these Societies, including those of the London society, will henceforth be published in the quarterly journal, "Child Study," which will be the common organ of all of them. By this arrangement it is believed that the work hitherto undertaken by the Childhood Society will be carried on with even greater energy and success, and will be more and more fruitful of results in improving the condition of children.

In these circumstances a word of retrospect on the past work of the Childhood Society may be permitted. In the preface to the first volume we recorded our sense of the service rendered by Sir Douglas Galton, who may be regarded as the chief founder of the Society. The Society has been honoured from the outset by the support of Earl Egerton of Tatton as President, and Sir Richard B. Martin as Treasurer. We must also offer our tribute of gratitude to one whose share in its early history and development was equally great, Dr. Francis Warner. That distinguished physician devoted

much time and his well-known skill to a laborious investigation into the condition of children in the elementary schools, personally examining not less than 100,000, and establishing the fact that many of them were by a correlation of physical and mental deficiencies unable to avail themselves of the benefits of education in the same degree as their schoolfellows; and it is largely to his researches, published by the Childhood Society, that the legislation which has resulted in the establishment of special schools is due. In co-operation with him, Dr. Shuttleworth and other members of the Council have rendered valuable service.

Another useful method of action adopted by the Childhood Society has been the organisation of courses of lectures for the benefit of persons practically engaged in education, as well as of the general public. In arranging for these lectures, the Council have always had in consideration the scientific purpose for which the Society was established, as well as the popular element which was necessary to make them attractive. The volumes, of which this is the last, form an inadequate record of these valuable lectures, which the Council would have been glad to publish at length if their resources had enabled them to do so. Even so, it is submitted that enough is contained in these volumes to show that the Society has not failed in its mission, and to augur well for its future under the new system.

The Society has to thank Mr. J. W. Palmer for his services as Honorary Auditor and Editor, and Mr. W. J. Durrie Mulford for long and self-sacrificing and most efficient service in the capacity of Honorary Secretary.

CONDITIONS OF CHILDREN, PHYSICAL AND MENTAL, IN RESIDENT HOMES.

By ROBERT MILNE, M.D., C.M.,

Medical Officer, Dr. Barnardo's Homes and Hospitals.

Read February 15th, 1906.

I have often been thankful that, in the first years of my medical experience in London, I was brought in contact with the poorest of the poor. In their homes during their sickness, and during a period of great dulness of trade, when poverty abounded, I became acquainted with them, with their ways of life, and the great kindness, liberality, and helpfulness to one another in their deepest need.

A visitor to a poor district in any of our great towns is struck by the white and bleached condition of the residents. They are like a plant grown in the dark, without colour and energy. Start a plant, however, for example a potato, *thus*, then transplant to a genial air and a good soil; speedily the colour comes and the weakness passes. The plant is soon vigorous and strong as those in a good situation. By such an analogy you will readily understand what I mean by the *transplanting* of the children.

From the overcrowded home, improper ventilation, bad cooking, irregular hours, dirty lanes and streets, they are taken to homes well ventilated, plenty of room to play, abundance of fresh air, lovely sunshine and flowers; they have regular hours, abundance of sleep, with well-cooked food, and careful, loving nursing. A little while and the human plant becomes vigorous and strong.

The careful selection and watchful superintendence of workers was always a great point in Dr. Barnardo's Homes. In a note to me some years ago about his fellow-workers he said, "The most essential thing is loving, noble Christian workers, unselfish and working for the children's best. I wish to know how to get rid of half-a-dozen whose whole aim is self, and who will neither bear patiently with the children's failures nor irritances, but by their nervous irritability keep the children on tenterhooks, and always rub them the wrong way."

Seaside Home.—But not only have we the transplanting to the

Homes in and around London; we have, in addition, a large convalescent Home by the sea at Felixstowe. There the more weakly children, in companies of from fifty to sixty, are sent for from three to four weeks at a time, or, when necessary, for much longer periods. The contrast previous to the establishment of this home and the after-health of those sent down during the following winter months was most pronounced. It lifted them into a different stratum of health, and brought them to a loftier plane of strength and endurance than I could have believed possible. Such a change for scrofulous and weakly children, also those with a tendency to phthisis, surpasses all other methods of treatment that can be devised. The healthy appearance, the increased strength, and the great gain in weight after the weeks by the sea richly repay the little outlay in connection with the same.

Boarding Out.—Many thousands of children are boarded out. None are ever sent out without the most full and careful medical inspection, as on admission to the Homes any peculiarity is noted, and the weight carefully taken and recorded. Only to carefully selected Homes are they sent; only under the care of a responsible local committee. They are regularly visited by visitors from the Homes, their rooms inspected, their clothing examined, their condition noted, and the progress both in day and Sunday school registered in the records of the Homes. "How can I get the earliest possible knowledge that anything is going wrong with any of the children boarded out?" asked the lady in charge of this work some time ago of me; "they may be far gone before I can tell." "Oh," I replied, "have them carefully weighed and the record kept." Now the visitor carries a spring balance and keeps a record. "I could not," she tells me, "have believed the school teachers and the foster-parents of the children would take such an interest and be so ready to help in the school." The balance is generally fastened to a beam and the children weighed, a most interesting ceremony for those children who are looking on. They appear to be as interested as we are, for these children are frequently visited in schools as well as when their homes are inspected.

Result B. O.—The result of the boarding-out system, as was so well known in my boyish days, is easily first. When at school in Aberdeenshire, the boarded-out pauper child and the wealthy sat side by side in school, and no one knew who was who. When those boarded out are from time to time returned to the central Home in groups of 40 to 100 for emigration to Canada, I have almost invariably been agreeably surprised at their robust health and strength, development

and intelligence. Not the smart intelligence of the city child from the teeth outward, but the wider, deeper knowledge of the country child. Very few wastrels turn up, the foster-parents take a pride in them. Clergymen have written thanking us for sending them to the districts. At first they took the first places in the Sunday and district schools. This speedily became a stimulus to the local children and set them to work as well. One aspect of the boarding out I have failed to account for, namely, the great number of adenoid cases among those who have been boarded out for years. Frequently, I have had to operate on 25 out of 60 ere they could pass on to Canada.

Age B. O.—The age of boarding out is an interesting one. Do not send children over eight. Give us little dots, not big, is the request from the superintending Sister. "Why?" We find the little ones are at once adopted as members of the family; the older ones—well, when the people have a neighbour drop in, they say to the child, "Run out for a little." They fear the young ears may hear, and the little tongues gossip. Therefore they never have the same family life as the younger.

The affection of these foster-parents for those under their care is wonderful; for years they often correspond with them, give them a hearty welcome for a holiday, or to recruit after an illness. None the less do the sweetest and most loving memories of the foster-parents linger as precious memories in the children, and become a very precious inheritance indeed.

No destitute child.—The children, on admission, are taken into the receiving houses. Before they pass into the Homes they are medically inspected, their chest measured, vaccination, teeth, eyes, hair, the head, condition of glands and development noted. Their height and weight is taken and recorded, also any marks, scars or deformity. They are bathed and clothed. More especially the older girls are kept back, put, perhaps, into a separate home for a time. Their character and propensities noted, and the home selected according to all these, combined with their history.

No child, however, is admitted without the most careful and searching inquiry into their family history and relations. If destitute they are taken; if not destitute they are refused. No influence can force the door open.

Institution life. The babies and youngest children, under perhaps three years of age, are, if healthy, boarded out at once. The boys from five to eight are in the Shepherd's Fold and elsewhere. A little older they are at Norwood, Epsom and Jersey Homes. From 10 to

14. at Leopold House and Watts Naval Training School. It is undoubtedly right that all the junior boys of the ages mentioned should be in the country, with their own playground, baths, etc. The air is fresher, and the health conditions are the best. While in the city, for the more tender ages, there are numerous disadvantages. The central Home at Stepney, however, for lads over fourteen years of age, the health-rate there is excellent. What with the eleven trades—bakers, blacksmiths, bootmakers, brushmakers, carpenters, harness-makers, matmakers, printers, tailors, tinsmiths, wheelwrights —it is a busy hive of training. What with military drill, schools, games, such as football and cricket, and the swimming bath, I could not desire a healthier place for the lads.

Life in the Girls' Village Home, Barkingside.—As we enter, the Governor's house stands on the left with the offices. A little further, several views open before us, showing in all 63 cottages, each containing a mother and family of from 16 to 25 girls. In each cottage the ages vary from the tiny toddler of from 2 to 3 years to the more or less trained girl of 16. Entering a cottage—on the ground floor is the mother's parlour, a large playground for the children with abundance of toys, the dining room, kitchen, and scullery, etc. Upstairs, the bedrooms, well ventilated and clean. Each child has her own bed. Some time ago a little girl was admitted of eight years of age, who had been wandering with her father over the northern parts of England. When introduced to the bedroom, she saw a bed for the first time in her life. In her former life she had always slept in outhouses and pigsties. The only happy time, she said, that she and her brother had, was when the police locked her father up. Poor child, she felt the discipline of the Homes very trying; the mother of the cottage found her even more so, for her delight was on a wet day to get outside without her shoes, come in, mount the stairs and jump on the bed, leaving her footprints, to her great admiration, wherever she went. On entering the mother's parlour one day, she found her mother in tears. "What are you crying about, Mother?" "I am crying because you are such a naughty child." "Well, if you cry for that, I think you have very little to cry about." It proved to be the turning epoch in her life.

Nearly opposite the Governor's house, as we enter, to the right is the church.

As we pass round the village, we must pay a visit to the *Laundry*, where the workers are hard at work. Between 18 and 19 thousand articles pass through their hands weekly.

Near by is the *Embroidery School.* How can girls in their position do such lovely work? The position of these is very sad and serious. Not one is robust and strong, either physically or mentally. One is without an arm and leg, both lost in a railway accident. Few, if any, have got beyond the second standard; many cannot pass even the first. Yet it is from these mentally and physically maimed the most lovely work is turned out. By careful loving teaching they have mastered the difficulty, and find the keenest pleasure and interest in it. They are bright and happy; nothing I know of has done so much to draw out the slumbering consciousness of these dull, stupid, and slow-working brains as this lovely embroidery, lace, and other work that is done. From these you will see that when the fitting chord is struck, how wonderfully responsive even the intellect usually looked upon as hopeless may be.

The School.—Here we find the equipment and detail up to date; in addition, however, to the usual requirements of an ordinary school, we find a class for the mentally deficient. On this roll there are at present 46; 43 present. They are taught a little of the three Rs, knitting, sewing, rug-making, paper flowers, a little drawing, object lessons, kindergarten work, and all shown specimens. Half-a-dozen of these are in this class from neglect in former years, and will be gradually moved up to higher classes. Little of the mental deficiency could be detected by an observer looking over the class. They are bright and cheerful in appearance. The *Workroom*, containing mostly cripples, where the dressmaking of the village home is done, stands opposite the school.

Q.V.H.—The Receiving House for new arrivals, where all are first welcomed by the Sister in charge. They are kept there for some time, thorough cleanliness arrived at; then, before passing into the cottages, another careful medical examination is held. From this the youngest of the children are boarded out. Those of a few years old are boarded out from the cottages. The Sister in charge has been there for three years, and 1,786 children have passed through her hands.

Selection of Workers.—The great care and thoroughness with which the selection of workers is carried out may well be shown here. Testimonials and references from Christian friends, clergymen, ministers, and others are needed before being taken on; then for three months they are taken as temporary workers. They are placed in charge of a cottage for a time. They become acquainted both with the method of work and with the children. These temporary mothers generally have in turn three cottages, thus their

capacity, character, and suitability are tested. If found suitable after three months' probation they are placed in charge of a cottage, and become cottage mothers. In spite of this, however, sometimes an unsuitable worker gets in.

Sanatorium.—For many years we endeavoured to get a large, well-ventilated house in a healthy neighbourhood with plenty of open space around. In this we failed. Finally Dr. Barnardo decided to build two in the Village Home. We have now accommodation for 25 patients.

The experience of the past eighteen months leads me to fondly anticipate that the results will be most satisfactory. With the children constantly under supervision the disease can be easily detected in its very early stages. On the least suspicion of anything approaching, the child is carefully weighed, and its temperature taken regularly, *i.e.*, both morning and evening, about 9 a.m. and 5.30 p.m. This gives the lowest and highest for the twenty-four hours. These (weighing and temperature) give clear indications before the stethoscope can detect anything wrong in the chest. When the suspicion is in any way confirmed, the child is at once taken into the sanatorium for most careful watching and treatment. My experience in the past has been most pleasing and gratifying. Several who came to us in former years only to die have rallied and been able to go out to service. Some are now strong and well after five and six years. At first great caution is exercised in placing them out in the most favourable situations and circumstances.

Cripples.—Of cripples and maimed we have a great number, some without legs and some without arms, many without one leg or arm, one without an arm and leg. Many, too, paralysed on one side, some in both legs, and some helpless in their arms. One of the chief surgeons for children's diseases remarked to my son at the London Hospital "that there must be a lot of cripples in Dr. Barnardo's Home that might be greatly benefited by operation." "Ask him down," I said to my son, "any Monday, Wednesday, or Friday afternoon." I had over 150 cripples from the various London homes; they marched past in two companies. "Well," I remarked, "what do you think of that company?" "Oh! Dr. Milne," he said, "don't speak; give me a few minutes to think; the like of this I have never seen. I can only say all has been done for them that surgery could do."

Alcohol.—Early experiences led me to the most cautious use of alcohol in any form among the children and young people under my care. In this Dr. Barnardo and I were at one. During all the

years I have had charge of the Homes I have kept it in stock. This, however, has very rarely needed to be replenished. I have often been struck with the eagerness with which our house surgeons, both male and female, fresh from study, have flown to its use on almost every occasion. Speedily, and I believe without exception, they clearly saw the mistake of this.

In quiet country places its influence can be marked and followed in families in a way altogether surpassing what can be done in towns.

Her Majesty's Hospital.—Let us now visit our palace of pain; our sanctuary for suffering where many of the cripples have had wonderful results from surgical and other means. The house surgeon's report for the past eighteen months is as follows:—

Statistics of Operations in Her Majesty's Hospital for Eighteen Months by DR. J. A. MILNE, M.B.Lond.

Radical cure of Hernia	20	Mastoidectomy	4
Osteotomy of Tibia and Femur	16	Excision of Knee Joint....	3
Opening and scraping Abscesses	12	Astragalectomy	3
Tubercular disease of Bones. Scraping and removing Sequestrum	9	Other Osteotomies	6
Tubercular diseases of Glands	7	Resection of Rib	1
Circumcision	7	Opening Dental Cyst	1
Removal of Tonsils and Adenoids (including operations at Ilford)	55	Laparotomy	1
Amputations	3	Skin grafting	1
		Tumour removed	1
		Tracheotomy	1
		Tenotomy	1
		Trephining (Cerebal Abscess)	1
		Expression of Lids (Trachoma)	1

In the Eye Ward we have trachoma, chronic catarrhal conjunctivis, and interstitial keratitis. Elsewhere we have two cases of Raynaud's disease, and one case of complete paralysis of both legs and arm.

See Eye Classification.—I may mention that trachoma is altogether an important and highly infectious disease. It is brought from the East. Both after the Crusades and after the Napoleonic invasion of Egypt, Europe was overrun by it. The worst cases I have had have been from Persia, Egypt, and some parts of the Turkish Empire. With the utmost skill and perseverance these cases cannot be pronounced cured or passed from observation for two years at least, there being such a tendency to relapse. To show the risk those in attendance run, and how infectious it is, I may mention that two of our house surgeons contracted the disease, and it was nearly two years before either could recommence work. Acute conjunctivis

takes from two to six weeks' treatment, while the chronic cases must be under watchful supervision and treatment for months. At the present time we have of these fifty under treatment. The number admitted year by year are as classification.

Adenoids.—For many years these have received most careful attention. Ten years ago a celebrated throat and ear surgeon wrote me through our honorary consulting surgeon, Mr. Watson-Cheyne, saying that he was most anxious to examine a number of schools and ascertain the condition, as had been done in Paris regarding adenoids. The surgeon came down and examined the girls in the school of the village home. After inspection he said, "My work is done; I could not have believed there was a school in the kingdom so free." The head teacher remarked, "What were you examining for?" "For something behind the nose." "Oh!" she replied, "Dr. Milne had attended to all that." "Can you tell me how many you have done here?" he asked, turning to me. "Yes. Out of the 700 in the school about 200." Many such cases always turn up on the return of children from boarding out, although no trace was apparent when they went. Twenty to twenty-five out of sixty have to be done.

Epidemics.—Influenza has frequently passed over the Homes, but excepting its first appearance in London in the severe fogs of '91 we had little anxiety among the children.

Scarlet Fever.—I have been asked specially to refer to scarlet fever. During these years we have had many cases. Twenty-six years ago Dr. Barnardo telegraphed for me to come from Aberdeenshire and assist in an epidemic of scarlet fever. There were 120 cases. In Aberdeenshire we had a somewhat similar outbreak. There I used inunction of carbolic oil, and was much surprised to find that very often it was confined to the one member of a family. Since, I have gone along similar lines, and very frequently had a case in the midst of others without it spreading. By careful inunction with carbolic oil (1 in 10) or eucalyptus oil, etc., from the crown of the head to the sole of the foot (*except* when it is coming) I have never known it spread. In the cottages I frequently had a case in the midst of sixteen others and no spreading. In the homes of private friends I have often done the same, as well as in my own family. Yet, when a subsequent outbreak came, several of those who had thus escaped became victims. In the last outbreak at the Girls' Village Home—the origin and spread of which we could neither detect nor prevent, but suspected the milk supplied—repeated careful inspection of every child in the Village Home failed to detect the least sign of *peeling*. I kept the first case in a cottage

with nineteen others. No other case occurred in the same cottage for over six weeks, although the child was confined to a room all the time, yet within two days of the first case occurring several cases appeared all over the village.

Measles.—On several occasions we have been successful in preventing measles spreading, but one can never be sure of doing so, as it is infectious before the disease is manifest. Inunction, however, with and keeping the rooms full of the vapour of eucalyptus greatly diminishes the risk when combined with free ventilation.

Eyes.—For infectious cases see classification. For vision the head teacher of the school hands me from time to time a list of those who appear to suffer from defective vision; these are taken in turn and their eyes tested.

Syphilis.—Some years ago a Government inquiry was made into the condition of children's eyes in the various schools of the kingdom, more especially of the resident schools. When the medical inspector was examining the children individually he remarked, "I never saw so many syphilitic cases." Many suffer from this terrible, inherited malady. No part of the body is safe. Frequently it is clearly stamped, so that an experienced eye can detect it at a glance. In other cases the fell foe is masked and may not become manifest for many years. Very often it becomes apparent in the eyes about 16 or 17 years of age. Careful watching and treatment is most successful. Without this it may play serious havoc before, if ever, its ravages can be arrested (see Admission Record).

Girls employed in Embroidery School (total number 53).

School standard:—0 = 17; I. = 5; II = 12; III. and over=19. Total 53.

Analysis as to affliction.—Feeble-minded, 13; very feeble-minded, 12; delicate, 5; deformed, 4; paralysed, maimed, &c.,* 19. Total 53.

Laundry Girls.

Number in residence, 85; paid workers, 43. Total, 128.

Articles passed through laundry, 18,000 to 19,000 weekly.

Hours of work:—8 a.m. to 12.30; 2 p.m. to 6.30 p.m. Saturday, 8 a.m. to 12 p.m. Hour of rising, 6 a.m.; hour of retiring, 8.45 p.m. (Hour of retiring for young girls, 7 p.m.)

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* Of whom 1 is deaf and dumb; 1 blind; 1 has arm and leg amputated; 1 has both legs amputated. = 4.

Table of Afflicted Laundry Girls.

	House Girls.	Day Girls.
Paralysis	5	5
Hip disease	2	4
Amputations	4	4
Rickets	1	—
Angular and Lateral Curvature	2	—
Mentally deficient	17	3
Caries	1	1
Phthisis (In Sanatorium)	1	4 (temporarily invalided).
	33	21

Analysis of Mortality in all Institutions, 1903–5.

Accidents: Motor car	1	3	Phthisis	13	44
Accidents: Burn	1		Tubercular meningitis	11	
Accidents: Drowned	1		Meningitis	5	
Bronchitis	9	24	Tuberculosis	15	
Pneumonia	15		Otorrhœa and Sequelæ	5	
Cerebro-spinal meningitis	1		Measles	6	
Convulsions	10		Nephritis	2	
Diarrhœa	17		Paralysis	3	
Diphtheria	4		Pneumonia	5	
Epilepsy	1		Pericarditis	3	
Exhaustion	15		Pyæmia	7	
Gastritis	1		Rheumatism	2	
Hæmorrhage (internal)	1		Raynaud's disease	1	
Lardaceous disease	3		Syphilis	4	
Laryngitis stridulus	2		Thrush	1	
Heart failure	15		Scarlet fever	4	
Marasmus	5		Whooping-cough	9	
			Total	198	

Deaths.

	1903.	1904.	1905.	
Among children boarded out	36	31	26	
In the Branch Homes	6	10	5	
In Her Majesty's Hospital	10	22	17	
At Ilford	12	12	16	
At Shepherd's House	—	—	1	
At Leopold House	—	—	1	
At Norwood	—	—	1	
	64	75	67	= 206

Cripples in Stepney Home.

Paralysis, both legs		13	
„ right leg.....		5	
„ left leg		8	
„ arm and leg ..		7	
Hip disease.....		27	
Amputations:			
Hip	3	20	
Leg	14		
Foot	2		
Arm	1		
Anchylosis		7	
Caries (right leg)		2	
Rickets		10	
Curvature:			
Angular ..	5	9	
Lateral ..	4		
Accidents:			
Burned arm (useless)	1	2	
Maimed hand.....	1		
Mentally deficient		7	
Deaf and Dumb		4	
Cardiac disease		4	
Tracheotomy tube		1	
Eyes (nearly blind)		2	
Fingers (diseased carpus) ..		1	
Lupus		1	
		130	

Diseases among admissions to Girls' Village Homes during Sister Fielding's Management for three years (1,786).

	1893.	1894.	1895.	1896.		
Measles	2	—	15	16	=	33
Scarlet fever....	—	—	1	—	=	1
Diphtheria ...	3	—	—	2	=	5
Whooping-cough	4	2	5	—	=	11
Ringworm	22	27	19	42	=	110
Seborrhœa	17	24	23	15	=	19

Feeble-minded Children in Village Home School, 13th November, 1905.

Number on register, 46; attendance this day, 43.

Six of these are there due to neglect. They are gradually moved up. The teaching includes the three Rs; knitting; sewing; rug-making; paper flowers; a little drawing; object lessons; kindergarten specimens.

In all these years I have never known an elder lad but be always ready and willing to assist a younger. Their kindness and attention to the young has always surprised me. The influence, too, of a young toddler in a cottage at the Girls' Village Home is most beneficial to the older girls. It calls forth thought, care, and attention.

Trades.—The trades are supplied with lads most suitable for them, for many of the lads are cripples. In the Stepney Home we have at present 130 crippled (see classification).

Many are only suitable for the Tailor's Department. Here is a lad with both legs amputated near the hip. He has strong and powerful arms. What can be done with him? After some years in the tailor's shop he is ready for a situation. He is a first-rate

cricketer, leaps along in a wonderful way, and can climb the rain-water pipes like a monkey. His apprenticeship is up. Many applications are made by the Governor for a situation. All reject him because he has no legs. "Let *me* apply for the next situation," he said. "All right." "Have you told them you have no legs?" "No. What have they got to do with it?" Away in a country village he enters a shop and tells the master who stands behind the counter that he is the applicant for the appointment. The master scratches his head and stares at him. The lad coolly turns round and says, "Well, will I do?" "I do not see how you can do without legs." "Why, this is the first time I ever heard of a tailor working with his legs. Give me a chance." "I will give you a chance, my lad." Years have passed since then, and he still holds the situation.

Jimmy Hughes, who recently left us, was another such. The surgeon, referred to above, was greatly interested in him, and could not believe he could swim until he saw him in the big swimming bath, and threw some coins in the 5ft.-deep water for him to dive for. "I could not have believed it unless I had seen it," he said. Jimmy was one of the finest swimmers in the Homes.

Medical Condition of Children on Admission as to Disease or Afflictions: 1895—1905.

(*a*) BOYS.

Year.	Total Admissions Examined.	Ringworm.	Scabies.	Eczema.	Ulcers.	Follicular Conjunctivitis.	Catarrhal Ophthalmia.	Catarrhal Ophthalmia, Chronic.	Trachoma.	Blepharitis.	Strabismus.	Defective Vision.	Blindness.	Keratitis and Opacity.	Adenoids.	Phthisis.	Tubercular Disease.	Lateral Curvature.	Paralysis.	Abdominal Enlargement.	Weak Chest.	Syphilis.	Rickets.	Hernia.	Otorrhœa.	Ozæna.	Deaf and Dumb.	Broken Incisors.	With Limbs, etc., Amputated.	Heart Disease.	Fractures and Dislocations.	Varicose Veins and Varicocele.	Incontinence.	Impediments in Speech.	Miscellaneous.
1895	981	40	8	12	7	16	105	69	15	22	11	4	2	12	12	4	26	5	12	5	14	4	15	20	8	2	6	1	12	5	2	3	1	...	3
1896	1,002	43	27	13	4	12	38	45	4	22	7	1	5	12	9	5	32	9	17	10	13	5	3	23	12	1	4	8	5	4	8	9	...	...	7
1897	734	12	20	15	14	27	20	23	14	19	8	16	3	7	20	2	14	2	9	3	6	10	24	5	2	6	4	10	3	2	6	4	1	1	13
1898	950	24	24	11	5	26	90	35	16	48	7	6	5	10	13	2	19	7	15	1	11	9	14	8	18	8	1	7	7	1	2	4	3	1	8
1899	1,114	33	20	26	8	19	107	41	16	35	12	4	9	9	42	1	25	4	17	1	7	16	15	17	7	8	3	9	5	2	1	3	3	2	5
1900	1,111	30	26	18	6	12	120	52	9	41	16	13	1	8	46	7	36	3	10	10	12	17	35	9	7	9	6	4	4	2	1	1	10	4	7
1901	1,046	32	29	18	2	21	105	26	3	31	10	10	1	11	48	5	28	3	13	15	20	7	22	23	9	7	7	11	5	5	6	3	1	...	4
1902	1,418	105	54	50	...	56	131	42	5	21	21	11	...	20	74	6	27	3	13	8	11	5	34	11	14	2	7	6	5	2	4	6	4	4	11
1903	1,613	44	97	51	8	7	110	37	3	48	19	16	3	9	68	2	44	5	20	4	29	18	51	21	21	2	9	13	6	1	3	21	3	12	7
1904	1,665	25	57	35	8	51	225	50	5	40	32	11	2	8	57	3	45	5	18	...	13	28	35	17	11	2	7	5	13	3	5	6	3	3	4
1905	1,488	23	28	5	6	84	220	41	4	40	24	6	2	10	95	1	35	2	11	4	14	7	19	8	5	2	3	10	7	2	6	8	...	3	7
	32,182	411	390	254	68	331	1,271	461	94	367	167	98	33	116	474	38	331	48	155	61	150	126	267	162	114	59	57	84	72	29	44	68	29	30	76

(*b*) GIRLS.

Year.	Total Admission Examined.	Ringworm.	Scabies.	Eczema.	Seborrhœa.	Ulcers.	Boils and Abscesses.	Strabismus.	Follicular Conjunctivitis.	Catarrhal Ophthalmia.	Catarrhal Ophthalmia, Chronic.	Trachoma.	Blepharitis.	Keratitis and Opacity.	Phthisis.	Tubercular Disease.	Lateral Curvature.	Abdominal Enlargement.	Weak Chest.	Delicate.	Syphilis.	Rickets.	Paralysis.	Hernia.	Otorrhœa.	Ozæna.	Adenoids.	Mental Deficiency.	Broken Incisors.	Incontinence.	Scars.	Miscellaneous.
1895	278	11	5	1	...	7	1	2	...	9	7	7	3	5	2	3	...	6	1	5	4	...	2	1	4	...	1	4	1	3	...	22
1896	316	7	4	6	...	1	...	5	...	21	10	2	2	4	3	5	5	5	2	8	8	...	2	4	7	1	12	7	...	3	23	21
1897	258	5	6	2	...	2	2	...	13	8	10	8	10	4	...	2	1	8	...	2	5	7	2	...	3	3	8	8	2	6	31	8
1898	376	17	4	6	3	3	2	7	5	12	10	2	6	11	2	5	2	8	2	2	7	8	...	2	5	5	14	4	3	1	75	17
1899	532	25	3	11	1	4	1	4	2	66	11	2	17	4	4	4	1	1	1	4	8	9	7	2	7	2	21	3	2	2	29	14
1900	564	12	6	6	2	1	...	4	1	22	17	1	7	7	2	10	...	3	...	13	13	10	3	1	3	5	33	6	4	5	43	12
1901	481	19	5	9	3	4	1	6	2	4	6	...	9	...	3	7	2	4	...	17	7	8	...	2	3	3	13	2	4	...	27	17
1902	700	24	11	12	2	3	1	5	3	12	14	1	14	5	3	6	5	12	...	3	7	10	5	2	4	4	21	8	1	1	45	23
1903	752	13	29	7	3	12	6	17	3	28	14	1	26	10	2	18	5	5	6	...	13	10	4	6	12	3	24	5	3	...	31	45
1904	840	17	24	9	6	...	8	14	9	107	30	2	23	6	2	10	1	3	5	1	25	10	3	2	8	2	19	8	1	1	28	39
1905	834	14	26	14	7	...	8	8	20	124	21	2	22	3	2	8	2	5	8	1	11	11	7	1	2	2	23	14	3	1	23	23
	5,931	164	123	73	27	37	30	72	58	413	150	28	139	59	25	78	24	60	25	56	108	83	35	23	58	30	189	69	24	23	353	237

THE PSYCHOLOGY OF READING.

By E. WHITE WALLIS, F.S.S.

(Member.)

Read March 29th, 1906.

Introduction.

Under the title, the Psychology of Reading, it is proposed to deal briefly with the several operations concerned in the process of acquiring knowledge from books, or the transfer of thought from one mind to another by means of books.

Section 1.—The Physical Operations involved in Reading.

The first essential in the chain of occurrences forming the process of reading is some source of light; upon this all seeing is dependent. From this source start the undulations of the light ray, which are (more or less) reflected to the eye from the surface of any opaque object,—in the case of reading, from the printed page,—and originate the nerve sensation which is translated by the brain into the thought or mental picture.

The many modifications and operations that take place between the source of light and the mental picture or mind concept, may be divided into two fairly distinct classes:—the physical modifications that take place before sensation is reached in the eye, and the psychological processes that go on after sensation is produced.

It will be more easy to understand the psychological problems if some consideration is first given to the physical operations involved.

From the source of light (the sun or lamp) start a number of undulations which travel through the ether. These undulations vary considerably in their rate of vibration, although they all travel through space at the same rate—about 186,000 miles a second. When a complete series of these varying undulations reach the eye at the same time, the combined ray produces the sensation of white light, but if some of the undulations are absent from the ray, the sensation of colour is produced.

In a uniform medium, these undulations or rays originated by the source of light travel in straight lines, but when they meet with a change of medium or an object in their path, several phenomena

may occur, according to the nature of the object and the way in which it is met:—

1. The ray may pass through the object;
2. It may be deflected from its course;
3. It may be partly or almost wholly reflected from the surface;
4. It may be partly or almost wholly absorbed or destroyed;
5. Some of the vibrations which make up the ray may pass through or be absorbed, and others reflected, thus producing colour.

The only knowledge of things around us obtained by sight is the power or property they may have of absorbing or reflecting light. It is these phenomena which are involved in the process of reading. The light rays falling on the page are reflected from the paper to the eyes, except where it is covered by the black print by which the light ray is absorbed. So that in ordinary books it is not the words and letters that impress the sight, but the absence of impression where these occur that has to be interpreted as the written word.

It has been suggested that reading would be much less fatiguing to the eye if white letters on a dark ground were adopted; but there is a practical difficulty in obtaining this effect, besides the fact that it is more easy to appreciate a fine clear black line than a white one.

The rays of light reflected from the page on reaching the eye undergo several modifications. First in passing through the cornea, or transparent raised portion of the outer covering of the eye-ball, they are slightly refracted, and if there are irregularities in the curvature of the cornea, this refraction is unequal, and causes the disability known as astigmatism.

Behind the cornea is a watery humour through which the rays pass with little alteration, until they come to the pupil or small hole in the iris curtain, which allows only the more central rays that have come through the cornea to travel on to the lense of the eye. In passing through the lense, the rays of light are refracted and focussed in a very small spot on the retina or membrane spread over the interior of the back portion of the eye-ball. Nearly the whole of the retina—a surface about the size of a florin—is sensitive to light, but only a very small spot is capable of clear and accurate vision. When light falls on other portions of the retina it attracts attention to the sensation, and the muscles revolve the eye-ball, so that the light may fall on this small yellow spot. There is another spot which is quite blind, but this does not immediately concern us. The incessant movement of the eye has become so habitual, that with most people it is difficult, without practice, to keep the eye still; but when this is accomplished it will be found that

the field of accurate vision is very small indeed. In a book at ordinary reading distance, although one may get a general impression of a whole printed page, only a few words covering about a square inch are clearly discernible without movement of the eye.

The retina, on which the sensation of light is received, consists of the terminals of the bundle of optic nerves, some half million in number, leading to the brain, the rest of the structure of the eye being concerned in the protection of this delicate organ of sense, and in modifying and directing the rays of light in the best way for producing a clear sense impression. In the same way that the outer ear serves the purpose of gathering sound waves and protecting the drum and other portions of the hearing apparatus.

Great similarity exists between the five commonly named senses—taste, smell, touch, hearing, and sight. Taste and smell are only affected by particles in contact with the membrane in which the nerves lie. Touch is mostly affected by contact, but is also taken to include the thermal sense which may be affected by contact or by feeling the heat waves which originate in a hot body, even at a great distance: say that of the sun. This sense therefore bears a close analogy to the finer sense of sight.

Besides the commonly named five senses, however, there is the very important sense of muscular movement. It is by this sense that we judge of weight and thickness, and perform a number of delicate operations unaided by the other senses; and it enters largely into the direction and perceptions of the other senses, more especially sight. The interpretation of sight impressions is largely aided by the muscular effort employed in the eye movements of direction; in the converging of the eyes toward one another, more or less, as the object under observation is near or far away. Muscular movement is also concerned in the focussing of the optical apparatus, as well as directing it towards the incoming light ray.

Some reference may be made to the question of training in regard to the senses, because it is doubtful if we can to any appreciable extent train the organs of sense in the realisation of impressions. Much, however, may be done in training the mind in the selection and discrimination of those impressions, and in quickening the recognition and correlation of them into percepts. Acuteness of vision, for instance, depends on the number of nerve terminals distributed on the retina, and this number could hardly be increased by training.

Training the senses means, therefore, a habit of concentrated and accurate inspection of things by means of the senses, and of readiness and certainty in recognising similarities and differences in

relation to other sense impressions. This, obviously, is more a matter of mind than physical sense.

So far we have dealt in outline with the physical portion of the subject, and with functions and properties that can be easily followed and clearly demonstrated; but when we come to the perception of sensation and the framing of thoughts and the construction of ideas, complexities and difficulties begin.

Section II.—Nerve and Brain Action from Retina to Concept.

Appreciation of sensation—Volition in muscular direction of organ—Presentation of definite sensations and muscular movements—Volition in consideration of these—Discrimination—Search in mind contents for similar sensation—Recognition, wholly or in part, of sensation, and formation of percept (associative synthesis)—Calling up of associated percepts and concepts—Selection and combination of associated ideas into concept—Memory.

When a ray of light falls on the retina, a stimulus is given to the nerve terminals of which it is composed, and sensation is conveyed to the brain by the optic (afferent) nerve.

Unless this sensation arouses some degree of attention in the mind, nothing further ensues, except—and it is an important exception—a step in the formation of a habit of inattention. There are many illustrations of this that will be familiar to everyone. The striking of a well-known clock, the ordinary objects in a room, produce sensation in the ear and eye, but frequently do not arouse any attention, or cause any act of volition.

But when attention is aroused, the first result is an act of volition carried out from the brain through the efferent nerves to the muscles of eye-movement, and the more delicate muscles of focus or adjustment, causing them to direct the organ in the best way to receive a clear impression.

This adjustment of the organ to the object, or apparent source of the impression, serves another purpose besides that of putting it in the best position; for the muscular effort required for the operation is appreciated by the muscular sense referred to, and enables the position and distance of the object to be determined or estimated, and if the object is a large one, the muscular sense will probably be still further exercised to ascertain its extent and main lines of definition.

The mind has thus presented for its contemplation, the sensation conveyed by the optic nerve, the sensation of the muscular movement performed, and also some general sensation from its surroundings.

But another act of volition is necessary to direct attention to these presentations.

To illustrate this consider an act of common occurrence: on taking out a watch to note the time, the eye is directed to receive the sensations caused by the watch face, but on putting away the watch, if the attention has wandered, the mind may be blank as regards any percept or knowledge of the time or appearance of the watch face. There is a consciousness of an act of volition in directing the muscles to adjust the eye to receive impression, and no doubt the sense impression was caused and conveyed by the nerves to the brain, but no attention was given to the sensations presented, and no percept or picture was formed.

On the other hand, when attention is directed to the sense impression an effort at discrimination is made by mentally comparing the impression with former impressions for the purpose of recognition. The attention given may be only sufficient to form a mental percept of the sense impression, as is the case in reading for the mere pleasure of reading, where the interest is devoted to the facile recognition of familiar words and sentences without forming any definite concept of the meaning.

The importance of this attitude of interest in acquiring knowledge or the formation of lasting concepts is so frequently overlooked that all modern writers on the psychology of education, Sully, Herbart, James, and even the Board of Education, find it necessary to urge its consideration upon their students.

Yet in the olden days this important factor was fully understood, and in the books of Exodus and Joshua, on two occasions where important events in history were to be impressed on future generations, the injunction is given that the questioning attitude of mind should precede the instruction:—

"When your children shall say unto you, 'What mean ye by this service?' Then ye shall say . . ." (*Exodus* xii. 26).

"When your children shall ask their fathers in time to come, saying, 'What mean these stones?' Then ye shall let your children know . . ." (*Joshua* iv. 21).

The formation of a concept or idea, from the percept of a sense impression, involves the reviving in consciousness of other percepts and ideas, and the selection and combination of these associated ideas into the concept.

It is very difficult to make a definite distinction between a percept and a concept, because every percept is a recognition of a sense

impression. To be recognised it must of necessity be compared with the revival of a former impression, and this comparison has some effect in modifying the new mental percept.

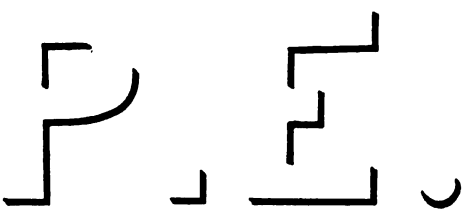
Perception is an acquired faculty, and not always a direct or accurate translation of a sensation. It is also largely influenced by previous precepts. What is perceived is as much an effect of the state of mind and expectation, as of sense impression in the eye. There is no reason to doubt that some people actually see (or perceive) ghosts and goblins, where others see only tree stumps. The boy in Goethe's ballad actually saw (or perceived) the Erl King as truly as his father saw the willows and the mist.

The mind percept, or mental picture, is usually the percept of the complete associated idea, and not a simple percept of the sense impression.

A patch of black and grey is seen moving on the floor and, on directing attention, it is recognised, and a percept formed of the cat, though only a short piece of the tail was in sight.

Or a glimpse of reddish-yellow in a plate of fruit induces the percept, not of orange-peel, but of the whole orange, with all its accompanying sensations of juice, taste, and smell.

Letters, although incomplete, are easily recognisable, and the percept formed includes the missing portions of the outline.



The next step towards the formation of a concept is the reviving of ideas and concepts that have been previously achieved by the mind, and that have a relation to the new percept under consideration. From these are selected and abstracted such as are most in accord with the state of mind, and by combination tend to form a new idea in the direction of the thought.

It is at this stage that language or nomenclature becomes essential, as it is almost impossible to conceive of abstract thought being carried on without proper names to denote the selected percepts and ideas by means of which new developments are reached.

Section III.—Reading.

The origin of symbolic representation. A knowledge of the symbol A knowledge of the word symbolised. A knowledge of constructive value. A knowledge of language. A mind-content sufficiently associated with the subject matter of the book to be available for reconstruction.

Reading differentiates from other modes of obtaining knowledge by sight, in that the percepts formed are gained entirely by the medium of symbols.

The printed page contains nothing except symbols of objects and ideas. Although it is most probable that the origin of writing was an attempt at pictorial or hieroglyphic representation of events, it is obvious that in considering reading in its present form, we must presuppose the existence of speech and language. The relation between the symbol and the object or idea symbolised is, in the case of printing and writing, so entirely empirical or arbitrary, both as regards sight and sound, that the association of the two has to be learnt and firmly established in the mind, before even the stage of forming a percept can be reached.

*"English is essentially a language of logograms. Spoken English is a very easy language for the foreigner, but written English one of the most difficult. We do not learn English words by spelling, but as a whole by word memories, and this is the reason why in teaching reading, all spelling methods with phonetic values and coloured letters, and so forth, are comparatively useless, except as providing an interesting amusement for the babies. They are instructive, they are amusing, they interest the children in finding out things for themselves, but they do not teach them to read. In fact, reading is if anything hindered."

R
E
A
D
I
N
G

READING

If the letters are arranged vertically, although they are easily distinguished as letters, the word is not grasped as a whole but has

* Ingleby Lectures: "Mentally Defective Children," by James Kerr, M.A., M.D., 1905.

to be spelt or built up; but when placed horizontally in the ordinary way the word is recognised as a logogram without being built up.

Anyone who is in the habit of correcting printers' proofs, will probably be aware that a different class of brain function is employed in the examination of the print for defects and typographical errors, to that employed in the general recognition of the word and its meaning. So much is this the case, that if, when reading the proof, one becomes interested in the subject matter, errors will probably be passed altogether, or the consciousness of noticing them may arise after the errors have been passed, showing that dual function was being carried on. The portion of the brain engaged in observing the letters was still at work, but attention being relaxed and partially diverted, completion of the conscious percept of the defective letter lagged behind the subject percept to which greater attention was being given.

This dual action carried on in the brain may also be illustrated by another familiar occurrence. One endeavours to recall a name, but, being unable to do so, dismisses it from immediate attention. Some time afterward, in the midst of irrelevant thought, the name will suddenly present itself to consciousness, shewing that, subconsciously, a tracing of associations has proceeded until the desired percept has been revived, and conscious attention is immediately aroused.

According to modern anatomy, reading, or the interpretation of written or printed words, is a function relegated to a region of the brain on the left side, known as the left angular gyrus, to which the nerve stimulus from both eyes is conveyed. In normal individuals this function is entirely confined to the left brain; and if, by injury or disease, the afferent nerves leading to this portion of the brain become defective the power of reading is lost, though in some cases the right side of the brain has been known to slowly take on function, and the power of reading eventually recovered.

The presentations that we now have to consider in order to form a percept, are:

First, the sense impression of a definite arrangement of black and white on the page.

Second, the association of this with a word or sound in language.

Third, the association of this word or sound with an object or idea.

Fourth, the modification of this association by the constructive value of the word in the sentence.

Another factor must be taken into account, that multiplies the percepts associated with reading, and that is the large number of differing symbols, each giving rise to different sense impressions which are used for one meaning.

READINC

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Reading.

Reading.

READINC

The perception or objectifying of a sound by association is different to the perception of a sound conveyed by sense impression on the ear, and probably occupies a different region of brain function.

When in the midst of talking or other sounds that are distracting attention, one sometimes pronounces words that are being read so as to get the sense impression of both sight and hearing and the muscular action of the vocal organs, and so arouse more attention.

In quaint old spelling, such as Chaucer, and in some forms of word puzzles, the form of the written word is unfamiliar, and does not readily arouse an associated percept; but when pronounced the sound is familiar and readily recognised and associated.

"Wel oghte us werche and ydelnesse withstonde."

In some cases of mental defect or deficiency, the meaning of a word cannot be appreciated through the sense of sight, but it can be recognised by sight so as to be pronounced, the sound mentally appreciated and the meaning of the word understood through the oral sense impression.

By the resolution of this mass of material the percept is obtained, and this in its turn gives rise to the revival and presentation of all associated percepts.

To use an astronomical metaphor: Around each word there starts

a circle of thought, consisting of a system of definite and nebulous ideas. These systems arising out of each word again revolve around the central idea of the sentence, until the paragraph or the page builds up almost a universe of percepts, from which the dominating mind has to select, abstract and arrange in order to build up the concept or thought which the author has intended to *arouse* (not convey).

Science and Literature have, however, a happy meeting ground in the fact that books are a stimulating cause, and in our present-day civilisation almost an essential cause, of re-combination and development of thought.

The failure of reading (a book) is when knowledge stops short of wisdom, the mind being content with achieving the thought of the author, and omitting a voluntary act of reconsideration and combination of ideas beyond the mere suggestion of the book.

As Cowper writes in his "Task": "Knowledge dwells in minds replete with thoughts of other men; Wisdom in minds attentive to their own."

If the problem has been clearly set out up to this point, it should be evident that the reading of a printed page does not present any new sense impression or primary percept to the mind; in fact, it is upon the familiarity of the presentation that the possibility of reading entirely depends. If the presentations call up no associated percepts and concepts, nothing is gained by the reading; the book is either unintelligible or has aroused no attention and volition on the part of the mind.

Kant says: "Perceptions without concepts are blind. Concepts without perceptions are empty."

An unintelligible book is one in which the ideas have but little relation to the ideas already in the mind of the reader, and therefore do not call up associations nor induce new combinations.

A difficult book is one with which the reader has many associated ideas, but associations remote or not easily revived, and their selection and re-combination along the general line of thought require that they should be placed in unfamiliar relations.

To illustrate this take two extracts from the Reports of the British Association for the Advancement of Science.

> "The inductance of choking coils would in general be fractions of a henry. The inductance of the winding of a transformer has no very important meaning, but it has a convenient size. Measuring it as mean volts per unit frequency ÷

four times the open circuit current in ampéres, the inductance of the primary coil on a 2 HP. closed magnetic circuit 1,000 volt transformer would be about 40 henrys." (British Association Report, 1895, page 205. F. G. Bailey to Oliver Lodge.)

To anyone who is not familiar with the subject treated, definite percepts and concepts would not be aroused, nor their knowledge of the science advanced.

The second extract leads one on the line of forming ideas, but becomes more baffling as it proceeds:

> "If we proceed on the probable supposition that the motion of each electron is an orbit of some kind going on within the molecules, it can be shown that the partials of the motion of the electron which causes the lines are elliptic partials; and that where an elliptic partial suffers an apsidal perturbation, it divides into two circular sub-partials, giving rise to the two constituents of a double line." (British Association Report, 1895, pp. 610–611. G. Johnstone Stoney, F.R.S.)

Section IV.—The place of "the Book" in Education: its Possibilities and Limitations.

Teaching a child to read—Teaching without a book—Teaching with a book—Gradations of teaching—Summary.

This somewhat elaborate dissection and differentiation of the many processes which go to make the art of reading, should enable us to consider the relation of the book to education; and to understand its possibilities, and especially its limitations, as a means of imparting knowledge.

One might suppose that the early introduction of the printed book became necessary in order to teach children to read; but considering that the early development of the child is due rather to self expression than to reception, a more logical and simpler method of education would be to teach children first the art of writing, so as to enable them to express their own ideas, before attempting to teach them to arrive at the ideas of others through the medium of the printed page.

I have in mind some instances where this plan has been tried with success, and with pleasure to the children. Of course by the time they could write their own thoughts they could also read writing, and had little difficulty in the transfer to the printed symbol, and fully understood what the meaning of reading was.

In general education an attempt is made to teach children to read when they are much too young; but the time spent upon it before seven years of age is mostly wasted, and results only in the repetition of syllables. Children who begin to read at five read very little

better by the time they are eight than do those who do not begin until they are seven.

The old method of teaching children to read by laboriously arriving at the sound value of letters and syllables, and then attaching the thought associated with the sound, is a clumsy and roundabout way, a good deal of which has to be forgotten again before facile reading is accomplished, and it is responsible for much of the unintelligent reading.

The more closely the word symbol can be associated with a definite object or percept, the more intelligent and useful will be the reading; hence any intermediate stage, such as spelling, that is not absolutely necessary is adding to brain effort and obscuring the result.

For this reason a good vocabulary of words and a knowledge of their meaning should precede any attempt to teach the reading of word symbols.

The slow progress made by young children in learning to read is largely due to their lack of vocabulary; and while they are supposed to be learning to read, they are really occupied in indirectly obtaining a vocabulary which might have been more advantageously learnt before the introduction of the book.

Intelligent reading is an intricate process, involving: a knowledge of things and familiarity with symbols; memory; judgment; and experience; and can we expect young, undeveloped minds to be anything but deadened by too early an introduction to this class of labour? A child of four years old may be able to distinguish and remember all the letters of the alphabet; but that has very little relation to the process of reading, and is no evidence at all as to the mind content of the child, or of its appreciation of the power of symbols and the direction of volition in the construction of suggested ideas.

When a young child can look at a printed page, and correctly produce the sound associated with the word images or symbols, it may still not have accomplished the greater part of the art of reading—*i.e.*, the interpretation and association of the word images into concept. In fact they may remain mere percepts without becoming concepts at all, and, as Kant puts it, are blind.

The building up of a new idea or concept is entirely the act of the individual mind, and the power of doing so is to a great extent governed by the materials (percepts and concepts) with which the mind is stored, as well as by judgment in their combination.

One of the evils that has grown out of the ease of writing and printing, is the mistaken supposition that it may be used for

conveying all knowledge. Books do not bring new sense impression of percepts to the mind, and the absence of mind content in young children makes reading irksome and wearisome, besides diverting and lessening the habit of observation and consideration.

Just as algebra is a mere confusion until number in the concrete is understood, and its symbolisation and manipulation in arithmetic has become familiar, so reading is unintelligible until the mind has been well stored with percepts founded on direct sense impression, the word symbols fully comprehended, and the mode of combining those percepts mastered by self expression.

Children who read too early, or who read much before the mind is well stored by observation, necessarily have to pass over a great deal that they read without forming mental concepts, and a habit of inattention is inevitably cultivated: like children who are expected or supposed to listen to a long sermon entirely outside the range of their experience.

The part that a book can play in effective teaching is very small and I would suggest certain gradations in teaching that seem to be less and less effective as they are farther removed from the primary idea of education. Gradations of teaching:—

1. To lead the child along a line of its own experience, co-ordinating one subject with another.

2. The teacher's own experience adapted and arranged, with a full knowledge of the child to be taught.

3. The teacher's study of a subject selected and arranged for the particular class of scholars.

4. A text-book arrangement of a subject, modified by the teacher to suit the class.

5. A text-book given to the scholars, and their memory of its contents tested by the teacher.

A sequential and logical arrangement of the subject itself is not nearly so important as that it should be sequential with the child's mind, and co-ordinate with other subjects that it is learning; and as the writer of the book cannot know as well as the teacher what is in the child's mind, a book arrangement can seldom be effective for teaching.

> "He must start with what the child can see for himself in the fields and in pictures, and lead him to describe in words and writing what he sees. This connection between description and reality must be established before text-books are used, or the (geographical) knowledge will be a hollow sham; and in the later stages the danger of substituting words for things must be

constantly guarded against by the employment of pictures, natural objects, specimens, school excursions, visits to works, and every device open to the teacher." (*The Geographical Teacher*, by E. G. W. Hewlett, M.A., page 107.)

"No text-book should stand between teacher and pupil; the teacher, not the text, will define the course of instruction, and no home study of printed matter should ever be assigned. Instead of the 'elementary' text-book, there should be a local manual for the use of the teacher in her preparation for the lessons (never to be seen in the schoolroom)." (*The Geographical Teacher*, by Mrs. Martha Krug Genthe, Ph.D., page 126)

In conclusion, the points to which I would specially direct attention, are:—

1. That books do not contain knowledge, but only stimulate or suggest re-combinations.

2. That the use of a book for the purpose of teaching is undesirable.

3. That when reading becomes a necessity, the child may be led to acquire it along lines in accord with the physical and psychological processes involved.

4. That words are not a combination of letters, but letters are the analysis of words.

5. That although the power of reading opens to the child certain formal lines of learning, its natural education and development is hindered when the introduction of the book becomes inevitable, and puts the symbol in place of the concrete or real.

OPEN-AIR RECOVERY SCHOOLS IN GERMANY.

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Read November 1st, 1906.

Dr. Frederick Rose dealt with the experiments which were being carried out in Germany with regard to the open-air instruction of sick and debilitated elementary school children, and gave full details of the experiments carried out at Charlottenburg, Mühlhausen, and München-Gladbach. The results achieved at Charlottenburg had been most favourable from the point of view of the physical condition of the children, and very satisfactory with regard to their educational progress.

The first experiment for the treatment of sick or debilitated school children was carried out at Charlottenburg in 1904. The honour of having initiated this most important departure in elementary schools belongs to Dr. Neufert and Dr. Bendix, both of Charlottenburg. They were brought out into the open air and taught and cured or improved at the same time. For many years a discussion has been taking place in Germany as to the proper treatment of such children. If they are allowed to remain in the ordinary classes their ailments are aggravated. If they are treated in sanatoria or convalescent homes the instruction is neglected, and the children fall behind in their school work. The natural result was to adopt a combination of educational work with hygienic treatment; this has resulted in the formation of open-air schools. From the hygienic standpoint the children must be brought out into the open air; must be fed regularly and properly; given plenty of play time and rest, and treated with fresh air, sunshine, and baths. From the educational standpoint the hours of formal instruction must be reduced by one half. Not more than twenty children must be under one teacher, and the children should be treated with the utmost consideration and attention, to the exclusion of all ordinary forms of discipline or punishment.

The realization of the first experiment at Charlottenburg was greatly assisted by the following fact:—

Amongst the children who were being medically examined before

entering school a large number were found to be backward. Of these backward children a very large number again were found to be backward owing to incipient disease and general debility. This is found not only in Germany but in England. It is evident that the only possible method of treatment for this type of school children is by way of combined open-air instruction and bodily treatment on the lines laid down at Charlottenburg.

A suitable place was chosen in the large pine forest near Charlottenburg, and the necessary primitive wooden structures were erected. £1,600 was voted by the Town Council, and other aid from private sources was forthcoming. About 100 children were chosen for the first experiment; they were suffering principally from anæmia, but many cases of the incipient stages of pulmonary, heart, and scrofulous diseases were included; diseases of an infectious nature were rigidly excluded.

The buildings, though primitive, were quite sufficient for the purpose. They consisted mostly of sheds, open on one or two or on all sides. One or two closed wooden class-rooms were provided as a protection against very inclement weather. The position was a very favourable one: sloping ground, gravel sub-soil, plenty of shade from the pine trees, with free circulation of air around the trunks. The whole space was fenced in. A small installation for slipper and shower bath was also added. The kitchen arrangements were small, but quite sufficient for the purpose.

The daily life in the open-air school was briefly as follows:—

The children arrived about 8. They came on foot or by tram. Immediately upon arrival they received a bowl of soup and a slice of bread and butter. A small amount of instruction with frequent intervals was then given. At 10 o'clock they received milk and bread and butter. The children then carried out gymnastics, or manual work, or reading. Dinner was served at half-past 12. After dinner the children rested or slept for two hours in deck chairs specially provided for the purpose. For cold weather rugs were provided. After 3, other classes received instruction, and at 4 a light meal of milk, bread and jam was given. From 4 to 7 a little instruction and plenty of play was carried on. At 7, before returning home, the children received a final meal of soup and bread and butter. The total food expenditure per child and day amounted to 6d. Poor children were dispensed from payment. Others paid in part or in full according to the position of their parents. The school doctor's work dealt principally with the careful selection of the children for entrance to the school, and the constant examination and measuring

of the children during the time at school. He directed his attention principally to the heart and lungs, and the general condition with regard to colour, muscular and flesh development. During the later experiments the scope of the medical examination has been greatly extended. At the end of the first experiment, which lasted three months, the children were again carefully examined for the purpose of a final comparison. The doctor's treatment was mostly of a hygienic nature. It dealt chiefly with suitable clothing, regulation of the children's daily life, and the ordering of baths. Bathing played a very great part in the treatment. Every child received two or three baths per week.

The success of the experiment was evident from the first. After a few weeks appetite, attention, general temperament, and appearance improved. At the conclusion of the experiment it was found that twenty-three per cent. cases had been cured, and forty-five greatly improved. The increase in weight was most remarkable: on an average about half-a-pound per week per child. Some children showed increases of from ten to sixteen pounds. It was also observed that the bodies had been hardened to a very considerable extent by the continual stay in the open air. In spite of a very cold and rainy summer no children suffered from cold or similar indispositions. The first experiment was carried out for three months; the second for six months; the third and fourth for eight months, with 250 children, from April right up to Christmas, when the ground was under snow. The percentage for cures and improvements in the latter experiments were much higher. About half the cases of anæmia were cured, and a large percentage of the scrofulous cases. Consumptive cases showed great improvement, and the heart action of the children was much better. It must be admitted that after returning to school about one-fifth of the children relapsed into their previous condition. That was, however, the fault of their home surroundings, not of the open-air school treatment.

From an educational point of view the results were most satisfactory. The improved behaviour of the children was most striking. They were punctual, clean, orderly and good-tempered. They showed considerable increase in attention to work and mental alertness. Upon returning to school nine-tenths were able to resume the ordinary school work as if nothing had happened. This gives food for much reflection. If so much can be attained by open-air treatment and instruction of sick and debilitated children, immense possibilities are opened up for the similar treatment and instruction of normal children.

It should be remarked that the instruction, whenever possible, was given in the open air. If it rained, under sheds open on two or more sides. During very cold, unpleasant weather, in the closed wooden schoolrooms provided for the purpose. But even when the snow was on the ground much instruction in the open was carried on. The formal instruction was limited to about two or two-and-a-half hours, and distributed over the morning and afternoon. The formal lessons lasted about half-an-hour, and there were ample intervals between each lesson. Formal instruction was limited principally to writing, arithmetic and similar instruction, requiring tables and writing apparatus. Almost all instruction in geography and history was given in the open air in an informal and interesting manner. A large amount of arithmetic was also taught in the open air with the help of actual measurements. A great deal of geography was taught with the help of modelling in sand to scale, and the study of the geographical features of the surrounding country.

Shortly afterwards a second experiment was carried out at Mülhausen (Alsace) in a park acquired by the municipality for a sum of £10,000. One hundred anæmic children were selected, and the experiment was carried on on similar lines to Charlottenburg. But the length of the school period was shorter, so that the results, though favourable, were not quite up to the Charlottenburg standard. Further experiments on similar lines are being carried on at München-Gladbach and Elberfeld. The results, as elsewhere, have been favourable. The town of Berlin has voted £15,000 for similar purposes. In a short time a large number of towns in Germany will have adopted this new development. Up to the present time the Charlottenburg experiment stands easily first in point of size, equipment and general conduct of the school from the educational and hygienic standpoint.

These experiments have attracted attention in England, and the honour of having established the first English open-air school is due to the Education Committee of the London County Council. The necessary site at Bostall Woods, Plumstead, was placed at the disposal of the Council by the Royal Arsenal Co-operative Society, at the suggestion of Mrs. Bridges-Adams, a former member of the late School Board for London. The scheme was warmly supported by Mr. Ernest Gray, L.C.C., who some time previously had drawn attention to the subject. As a practical educationist and former headmaster, he saw at once the great possibilities and future developments of the scheme. In spite of a very wet and cold summer the

school is progressing very satisfactorily, and will doubtless prove a great success.

The selection of children for open-air school treatment must be made by school medical officers, and should embrace children who are considered to be backward owing to incipient disease or general debility. Before entrance to the school their teeth should be put in order so as to enable them to derive the utmost benefit from their food. Defective teeth play a greater part in the propagation of anæmia than is generally supposed. Poor children should be provided with suitable and warm clothing. It is most necessary, at the outset, to carefully arrange the educational scheme, so that the children may not fall behind in their ordinary school work. Some difficulty will be experienced at the beginning in welding together children from different schools into suitable material for instructional purposes.

The qualifications of the teachers must be of a very high order, and should include special ability for nature study and general scientific knowledge. Discipline should be enforced solely by precept, example, and gentle and considerate treatment. The general principles to be observed in the establishment of open-air schools are the following:—

(1) Debilitated children and those suffering from mild chronic ailments which render them unfit for the strain of ordinary school work must be placed in schools better adapted to their physical and mental capacities. The most suitable type of school for this purpose is an open-air one situated in a wood, The time devoted to formal instruction should be reduced to about one-half.

(2) The hygienic aim of such a school must be to strengthen and cure the children by simple hygienic measures. Fresh air and sunshine, plentiful and suitable food, baths, plenty of movement, and periods of absolute rest.

(3) The open-air school is not only to be carried on during the spring and summer months. It is to be continued during the autumn and as far into the winter as possible, especially in countries with mild winters. It is not to be discontinued during vacations, but must be carried on with or without the morning's instruction, preferably the former.

(4) As a general rule, children are not to sleep in the open-air school, but to go thither in the morning and return home in the evening.

(5) Children suffering from acute or infectious diseases are

not to be admitted into open-air schools, but cared for elsewhere.

(6) The amount of formal instruction to be given is to be ascertained upon the basis of the following cardinal principles: —That children attend an open-air school for physical recuperation and cure, combined with the minimum amount of school work necessary to prevent them falling behind in the more essential subjects.

The choice of a site is very important. It should be on a slope on gravel sub-soil, facing the south if possible, and under pine trees. These latter afford the necessary shade, and do not impede the circulation of air. Stone, iron or concrete buildings should be avoided. All the sheds and barracks should be of wood and capable of being easily transported.

The question of whether children should sleep in open-air schools or return home in the evening must be decided individually and locally. They would certainly benefit to a greater extent by the former plan, but it would mean a heavy increase in expenditure for buildings and equipment. It is, further, of the greatest importance that open-air schools should not be confounded with holiday play centres, school sanatoria, school camps, fresh air funds, school excursions, school holiday camps and colonies, or similar institutions. These are all most useful in the exercise of their own special functions. But the open-air school is a special type of new school designed to meet the needs of sick and debilitated children by affording them combined hygienic treatment and school instruction. It would be perhaps best to call them for the present open-air recovery schools. They might possibly lead in the future to the establishment of true open-air schools. This would mean that the greater part of instruction given to normal children at the present time in the school rooms would be given in the future in the open air. Before doing this the whole present method of imparting ordinary elementary school instruction would have to be reorganised and re-modelled upon fresh lines. It would have to deal less with abstract matters and more with the concrete facts of daily life and surroundings, and actual training for actual conditions.

The greatest attention should be concentrated upon this educational aspect of the school. Otherwise open-air recovery schools will never be introduced to any great extent. London alone probably contains about 30,000 children who are urgently in need of open-air school treatment. These cannot be withdrawn from the ordinary schools for any length of time unless they are again

returned to the schools quite able to take up the instruction in common with the boys who remain in the schools. This is a *sine qua non* without which no system of open-air recovery schools or open-air schools could ever be efficiently conducted. The subjects might, for instance, be taught somewhat in the following manner:—

Arithmetic should be taken in the open air as much as possible and should be taught on the basis of measurements, all children being provided with tape measures. The children should measure the ground and trees, calculate spaces and so forth. Hundreds of suitable, practical sums would suggest themselves to capable teachers. Arithmetic originated in the open air as a consequence of work, and should in future deal less with manipulation and juggling in figures and more with actual objects and the measurement of dimensions. Great scope was opened for the teaching of geography. Practical maps of the district should be made to scale, mountain ranges modelled in sand. There were few geographical definitions which could not be suitably explained in the open air with the help of sand and a suitable countryside. More geography could be taught with the help of a small artificial river in one day than could be learned from books in a month. It should be recognised then that the study of geography should commence with the description of the immediate surroundings of the child. History, too, should take its rise from the district in which the child was born, and should then be extended to other countries.

Historical episodes should be acted by the children in the open, and they should be encouraged to use their own words. Singing, of course, should be carried on as much in the open air as possible. The subjects of the majority of songs are to be found in open-air life. Sung in the open, amid suitable surroundings, they would impress the children to an extent impossible within four walls. It was almost unnecessary to mention to what an extent nature study would gain from open-air instruction. Instead of being taught in snippets in a class-room with the help of dried, stuffed or captive specimens, it could be studied in the open from the beginning of the life of a plant or animal down to its decay or death. Weather observations should also be calculated, and children trained to understand them. The formation of character and the moral tone generally would benefit immensely by open-air school life. The children should be taught to look upon themselves as a large family; should be trained to the exercise of the virtues necessary for ordered life in communities, and should be taught to observe, but not to destroy, animal and insect life. The necessity of mutual assistance

and kindness of temper would soon become self-evident to them. They should, too, take part in the co-operative life of the open-air school community. For example, they should help in making necessary arrangements, in serving food, and in attending to whatever may be found necessary for their own wants and the wants of the little community. The keynote of the instruction should be constant change from work to play, reading, singing, and rest, together with perpetual stimulation of interest. As already mentioned, there should be no punishment, no exclusion from play, no unkind or hasty remarks, little blame and plenty of praise. It was necessary to mention this in view of the sick and debilitated condition of children attending open-air recovery schools. About three months after the return of the children to their ordinary schools they should be again very carefully examined, not only with regard to their physical condition but also with regard to the extent of their educational progress.

Such schools would not prove expensive. The principal extra item would be the feeding of the children, and for that Parliament has now given powers. On the outskirts of large towns and in small towns it would be much better to build such simple open-air schools even for normal children. The saving effected in building expenditure could be devoted to the feeding of the children and the reduction of classes to twenty pupils. Such open-air recovery schools were urgently needed all over England, as probably some 250,000 children stood in need of them. Rightly considered, such schools, being of a preventive nature, would eventually result in the avoidance of much unnecessary suffering and expense. One-third of sickly and debilitated children at elementary schools had nothing to look forward to but premature decay and death, with great suffering to themselves and unnecessary discomfort to others. Another third would struggle on through life a burden to themselves and to those around them. The remaining third would probably drift into workhouses, hospitals, home and charitable institutions, and thus in some form or other become a burden upon the community.

OUR TEETH; WHY WE LOSE THEM AND HOW WE MAY KEEP THEM.

By R. DENISON PEDLEY, F.R.C.S.Ed., M.R.C.S., L.D.S.Eng.,

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(MEMBER.)

Read January 31st, 1907.

The possession of good health is of such intrinsic value that it is often spoken of as "priceless." Yet, when we look around us and see how "few there be that find it," we are constantly reminded of influences at work which are retarding, if not actually preventing, us from ever attaining that which most of us desire. Some of these influences, such for instance as those of heredity, are beyond our ken. Others, commonly called environmental, we do control often more than we realise, and to them we shall mostly refer in the subject chosen for this evening's discourse.

Of all diseases which afflict civilised humanity dental disease is the most prevalent. Hence its importance.

As to our teeth, some peculiarities deserve notice. First, they are the hardest structures of the human body, and yet, apparently, they are the most easily destroyed. Again, their diseases do not directly destroy life—but they maim, and thus lead the way to many other diseases more dangerous to life, as we shall learn later on. Now, although from neglect of the teeth may arise many dire consequences, it is only necessary to give them ordinary care and attention to secure almost complete immunity from these evils. Judging, however, by the way in which the masses neglect the care of their teeth it seems that they consider them of little value, except perhaps in regard to enhancing their personal appearance, and altogether ignore the immense part they play with respect to their health.

If we examine sections of the tissues of the body and try to learn from them something of the structure of the teeth, we can see the intimate relation between the teeth and the human body of which they form part.

A section through a piece of muscle reveals the fact that it is made up of a series of fibres. Some are striped, others are not striped. Some are under the control of the will, others are not

subject to the will: but all these fibres are cells. A section through a piece of skin also shows various layers or strata composed of fibres —cells in various stages of growth—with here and there a hair follicle and a sweat gland.

In the same way, we may examine nerve tissue of the spinal cord —those long fibres, one end of which is fashioned according to the tissue in which it terminates—skin, muscle, or mucous membrane, and the other finishing in the ganglion of spinal cord or brain, along which the nerve current flows. Every structure of the body may thus be examined, and all will be found to be composed of cells—cells everywhere. They are, indeed, a vast community made up into tissues, and these again into systems—cutaneous, osseous, muscular, nervous—all having special duties and functions to perform.

Now a section through a tooth shows that it also is composed of fibres. The outside is called the enamel, and the layer beneath is the dentine or ivory of the tooth. Of this dentine most of the tooth is composed. In the earliest stages of tooth structure its tissues were formed of cells: the enamel from the epithelium or skin of the embryo jaw, and the dentine from the deeper tissue. As the tissues are built up, these cells become impregnated with lime salts, conveyed to them through the circulating blood. If the supplies are good the enamel and the dentine will be strong, but if they are not good then the enamel and the dentine will be weak and unable to resist disease.

Everyone has two sets of teeth. The first or temporary set (twenty in number—ten in each jaw) emerge above the gum in series, two below and two above, between the seventh month and the third year of child life; but their roots are not completed until much later. These teeth are intended by Nature to serve the purposes of mastication until the eleventh year. A curious natural process sets in, however, about the sixth year, by which the roots are gradually absorbed; Nature herself thus taking away the foundations of the old structures to allow of their easy removal and replacement by those of a more permanent character, and, under healthy conditions, the old teeth should all be shed and replaced by the new ones by the eleventh to twelfth year. Their natural removal, however, is constantly hindered by disease, which is detrimental both to the first set, while lasting, and to their successors.

Frequently many of the temporary teeth are carious at five and six years of age, and thus the growing child is subjected to conditions which retard its growth and development and, as will be shown later on, poison its system.

The permanent set (thirty-two in number—fifteen in each jaw) *commence* their emergence above the gum behind the temporary molars, and are often mistaken for temporary teeth. Their crowns are formed between the time of birth and three years of age. Their strength or weakness depends to some extent upon inheritance, but yet more upon the character and quality of the food given the child between those ages. The last of the series are the wisdom teeth, which emerge between the seventeenth and twenty-first years.

Dental caries—that disease by which most teeth are destroyed—is of bacterial origin. Bacteria are minute vegetable organisms, and there are many kinds of them. They are found in water, air and soil. Bacteria, however, have their uses, as if we examine the nitrous organisms of the soil we shall find that without their presence no land would be fertile, and all would be a barren waste. Bacteria likewise serve a useful purpose in the bread we eat. They also act as universal scavengers of the blood. Many, nevertheless, are pathogenic or disease-producing: such as the bacillus of anthrax, taken from the blood of a cow, and communicable to man through any abrasion of the skin, in handling hides; the Malta fever bacillus, found in goats, and distributed to man by the medium of the milk; also the bacillus of influenza and that of tuberculosis.

The fact that many disease-producing bacteria are found in the mouth is a strong reason why the teeth should be prevented from becoming a channel, through decay, for conveying such disease into the system. The process of tooth destruction is briefly as follows. Food left on or in between the teeth—especially starchy food—undergoes fermentation, due to acid-producing bacteria. This acid attacks the enamel of the tooth, with the result that the lime is dissolved out, and the enamel tissue broken down. Directly this happens the dentine is attacked, the lime of the softer dentine is dissolved out, and fresh bacteria invade the dentine tubes. These peptonise or digest the gelatine after the lime is removed, thus forming a *cavity*, a process accompanied with more or less pain. If at this stage the tooth is treated—the softened tissue removed, with the bacteria, and a suitable filling inserted—it may be saved for years of useful work. If the tooth is left untreated, the bacteria continue their destructive operations until the pulp chamber is reached. The nerve is then exposed, with more or less acute pain, and the contents of the pulp chamber—nerve and blood-vessels—are gradually destroyed; and, by their decomposition, putrefactive material with bacteria accumulates in the centre of the tooth, and extends to the apex of the root. Sooner or later some of this septic

material finds its way into the jaw—septic infection; the result is an abscess, with loss of the tooth, and occasionally the death of the patient by septic poisoning.

The effects of dental caries are far-reaching: it prevents efficient mastication—one of the most important functions of the human body; it spoils the food and promotes various digestive disorders; the nervous system is constantly irritated by pulp exposure; the blood is poisoned by the introduction of septic material, either through the jaws or by absorption from the stomach; and, beyond all this, vitality is lowered and a door is opened for the entrance of many other bacterial diseases.

The immediate causation of dental disease we have already mentioned, the remoter causes are equally important. As above mentioned, heredity plays an important part; and we know that parents with weak dental tissues often have children with teeth which show a tendency to disease.

The alteration in our food supply, too, affects the matter; the soft conditions in which our food is eaten (giving less work for the teeth and jaws to perform) and modern methods of milling (by which all *fibrous* material is removed from the flour) being answerable for the wholesale destruction of *weak* dental tissue.

The subject of food, appropriate and inappropriate, artificial, and unnatural, is too wide to enter into; but much, we believe, may be done to prevent dental disease by systematic inspection and treatment, and perhaps more still by the simple methods of constant cleanliness and the removal of all *débris* of food from the mouth, especially after the last meal of the day.

Jewish parents—among the poor, *especially*—set us a noble example. They live for the children. The mother, herself treated with great care, feeds her children naturally; they are thus better nourished and have better teeth in consequence. Here, then, we have the secret of good health, and teeth comparatively free from disease.

THE CARE OF THE THROAT, NOSE, AND EARS IN SCHOOL CHILDREN.

By St Clair Thomson, M.D., F.R.C.P., F.R.C.S.,

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Read February 14th, 1907.

Of all the defensive mechanisms of the body few are equal in importance to that of the nose. The chief functions of the nose are as an organ of smell, as a resonating chamber for the voice, and as a filter for the air we breathe. The nose is the natural and sufficient channel for breathing through. The mouth should only be used as an accessory air-way in case of emergency. This nasal air-way has no rest day or night. Many infections are introduced into the throat by the open mouth, or into the stomach by the food; but these doors of entry are closed all night, and are only occasionally open during the day. At night the eyes are closed, the ears are insensitive, the brain is at rest, and the heart beats are slackened; but breathing goes on steadily and unconsciously, and every breath is purified, and noxious germs are filtered off from it, all night as all day.

A glance at a model will show the convoluted lining of the nasal cavities. This lining is convoluted so as to expose a large surface to the air. It is continually bathed with sticky mucus; and it is on this sticky mucus that germs are emmeshed, and here they get fixed, much as bird-lime will capture a little bird. Not only do the germs passing into the nose get stuck on this surface, but they are quickly turned out by what we know as ciliated epithelium. The surface of the delicate lining of the nose is covered with millions of minute microscopic rods. All through life these keep waving, like the tentacles of a jelly-fish, and they keep waving always in one direction—towards the orifice of the nose. When this is viewed under the microscope it looks like a field of wheat waving constantly in one direction. Any irritating particle of dust which gets into the nose is often expelled more quickly by the abundant flow of mucus

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* Abstract only. The paper is published in full in *The Hospital* for March 16th, 1907.

which it excites. But the minute germs which try to invade our nasal fortress are quickly passed down by these waving rods ("cilia," as we call them) to the entrance of the nostrils. The entrance of the nostrils is further protected by hairs. During a foggy day in London, or a dusty railway journey, we have only to wipe out the entrance of the nose and see the amount of dust which these hairs will arrest. The microbes, then, are wafted down to this same region, and as they are entangled in the mucus they cannot do any more harm. To realise how much work the nose has to do in this purifying process it is well to recollect that on an average in twenty-four hours we inhale 10,000 litres of air. At the lowest estimate 1,500 organisms are inhaled into the nose every hour, and it must be a common event, at least in our average London atmosphere, for 14,000 organisms to pass into the nose during an hour's tranquil respiration. This would give 336,000 microbes for the nose to deal with as one day's work. The lining membrane of the nose has other functions. No matter what the temperature of the outside air may be, the nose is sufficient to warm it comfortably before it reaches the throat; the nose also, if the air is too dry, moistens it to a suitable degree.

Thus, before the air gets near the lungs it is filtered of dust and microbes, and agreeably warmed so as to make it fit for respiration. From the back of the nose a tube passes up to the ear, so as to supply an equality of air pressure on each side of the drum. When this tube is blocked, as it is when one has a cold, we all recognise the interference with acute hearing.

But behind this first line of defence there is another line of defence in the throat. We all know what and where the tonsils are. Besides the two tonsils which we can see at the back of the mouth there is another tonsil at the back of the nose. This latter tonsil does not make its presence known until it gets diseased or too much enlarged, when it is recognised as an adenoid growth. What exactly is the duty of the tonsils is not completely understood; but there can be no doubt that, as they are absent in the healthy adult and always present to some extent in childhood, they serve to protect the body from its outside enemies. There are other defensive arrangements, such as sneezing and coughing, which all help to keep the fortress intact.

Now we can understand the importance of the upper air passages in the preservation of health. We are now able to explain how they act, although empirically it had long been recognised that it was more natural to breathe through the nose than through the mouth.

Just as the mouth masticates and prepares the food for the stomach, so does the nose prepare the air for the lungs. When the nose is permanently obstructed, mouth breathing has to be adopted. Life can still be carried on—for Nature is full of compensations—but at a disadvantage. The cold air, unmoistened and unfiltered, enters through the mouth, drying the throat and exposing the lungs to greater danger. The teeth are more apt to decay, and they do not grow properly. When the nose is not used for breathing purposes it, like other unused things in life, ceases to develop properly; and although the mouth serves to replace it, it only does so imperfectly.

The appearance of the habitual mouth-breather is now so well known that we are able to recognise him across the street. The victims of nasal obstruction are seen to have a narrow, undeveloped nose, a drooping and projecting lower jaw, a constantly open mouth, through which the upper teeth project, while the absence of action of the muscles round the mouth give to the face a smooth, stupid, vacant, semi-idiotic expression. These patients are apt to be round-shouldered, with a curvature of the spine, narrow-chested, and not infrequently pigeon-breasted. Such is the appearance of the adenoid child with whom we are all acquainted nowadays. Adenoids are no new invention, nor are they limited to any race or climate. Photographs show that they are known from Greenland to the equator, while pictures in the Florence Galleries and statues in the Vatican prove that they existed in the periods of the Renaissance and of Greek antiquity.

Now that we have studied the natural methods of defence in the upper air-passages, we are in a position to think over the care to be taken of them in childhood. First of all, both for the sake of general health, and not to overwork a willing servant, the air supplied to the body should be as pure as possible. Although climates have their advantages, we must remember it is more important how we live than where we live. Sewage air should be as much avoided as contaminated food and drink. We have seen how the nose filters and warms the air before it reaches the lungs, so that no one at any age need fear an abundance of outside air. At night, so long as the child is warm in bed, the night air may blow over it freely. When it takes its walks or drives abroad it need not be half-smothered in a thick veil, with the hood of the perambulator up and backed against the wind, so that it breathes over and over again its own exhalations. Respirators over the mouth are useless, if the mouth is closed, for the nose is Nature's perfect respirator. If

mouth-breathing is a necessity the respirator starves the wearer of his much-needed oxygen.

Superabundant mucus from the nose must be got rid of. For man the natural and civilised method is by blowing. No child instinctively knows how to blow its nose, just as no child knows how to expectorate. The expectoration which a child raises from its chest it promptly swallows into the stomach, and any excess of mucus from the nose is allowed either to stagnate there, to flow backwards into the throat, or to dribble on to the upper lip. At the best it is simply wiped away—sometimes by the nurse with her own already contaminated handkerchief. The nose should be blown out, and not simply have its extremity dabbed. In the art of cleansing the nose the man in the street is the sensible person. One nostril should be closed with the thumb (covered with the pocket handkerchief), while down the other nostril a full blast of air from both lungs drives all secretion into the handkerchief. The process is then repeated for the opposite nostril. Children with catarrh should have their nostrils thoroughly cleared in this manner two or three times a day, and not be ineffectually irritated by simply having their noses frequently wiped.

Vigorous exercises—running, dancing, skipping, and all sorts of games—should be carried out with the mouth closed. But if the child has difficulty in breathing through the nose it is not wise to insist on the closed mouth. Ineffectual efforts to draw sufficient air from a narrow nose may result in the indrawing of the chest walls, as seen in the photographs I hand round. It is in such cases that the so-called breathing exercises do harm; their use comes in after the nose has been rendered normally potent.

For the care of the lower throat—the pharynx as we call it—there can be no doubt that the act of mastication has a healthy influence, and children should be taught to chew their food properly. Mufflers round the neck should be abolished; they do not reinforce any of the natural defences, but rather weaken them by interfering with the physiological action of the skin.

The proper use of the voice is the best protection for the vocal cords. The subject of voice use, including breathing, vocalisation, and enunciation, would lead us into too wide a subject at present. We English, as a race, are such bad speakers that we should lay to heart Carlyle's remark where he says that "God has gifted you with a tongue and has set it between your teeth that you may show to us your true meaning, not that it should be rattled like a muffin-bell." In children it is remarkable what an amount of, to us, high-pitched

screaming and yelling their little throats will stand. We should not check it, for joyous shouting and laughing, particularly in the open air, is doubtless a more natural and healthy exercise than any amount of informal indoor breathing-exercises. But we should take particular note if the child's voice appears to have at all what we call a nasal tone. This term is given when the nose is more or less obstructed. Of course, as a matter of fact, the voice does not assume a nasal character. The method which I employ is the use of the words, "Clapham Common." If a child pronounces it "Glabbad Gobbod," we are generally right is suspecting some nasal obstruction, and most probably adenoids.

Hearing is probably of all the special senses the most important, both in education and in the pleasures of life. There are some important points to bear in mind in regard to the care of the ears, but they are not numerous. But it is highly important that the earliest symptoms of deafness in childhood should be recognised. I have little doubt that 90 per cent. of the cases of deafness in adult life can be traced to this. No child should be labelled as inattentive until the doctor has pronounced that the ears are normal. Even short recurring attacks of very slight deafness and every case of earache should receive skilled medical advice. The wearing of cotton wool in the ear, except when ordered by a medical man, is as unnecessary as it is unsightly, and can only help to make it delicate.

Boxing the ears is so generally recognised as extremely dangerous that it is hardly necessary to refer to it. At the same time it is well to remember that damage to the drum of the ear may occur, if it is weakened by disease, by such acts of the individual as sneezing, coughing, or even blowing the nose. In such occurrences any teacher or nurse who had given a child some mild chastisement might be blamed for an accident to the ear of which they were quite innocent. Injury to the drum of the ear may also occur from other causes than what diplomatists call "unfriendly acts." Even an expression of affection may cause it, as I have heard of the drum being injured from a too vigorous kiss being applied to this orifice.

The ear is kept lubricated by wax. This is secreted in the outer half of the ear passage, and serves a very useful purpose. Like the mucus in the nose, it doubtless acts for the ear as a sort of bird-lime, preventing flies, dust, etc., from getting into the depths of the ear. This wax is being worked outwards by the movement of our jaws in mastication. When it reaches the surface, where it becomes visible, it is wiped away with the ordinary cleaning to the ear.

Many people are much too anxious about getting the wax out of

their ears. In their efforts to do so they are apt to push it so far inwards that it is no longer worked out by the action of the jaws. Many attempts to extract it may affect the ear drum. Picking out the wax from the ear with pins, toothpicks, ear scoops, etc., should be strictly forbidden. No one should introduce into his or her ear anything smaller than their own little finger, covered with the thickness of a towel.

It may be laid down as a principle that no foreign body should be allowed to remain in any of the upper air passages except when under medical inspection. If it is introduced in the nose efforts at expulsion should be encouraged in the method I have described. For the ear the most suitable remedy is a syringe and some warm water. In the throat no attempt should be made to get rid of a foreign substance, such as a piece of meat, by pushing it backwards, unless the child is threatened with immediate suffocation.

MENTAL TRAINING IN CHILDHOOD.

By ROBERT JONES, M.D., F.R.C.P.

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Read February 28th, 1907.

For several years I was resident physician to the Earlswood Asylum, where I had the opportunity of an extensive study of *morbid* "child psychology." I have, in addition, taken keen interest in the educational and physical development and growth of both town and country school children. Some years ago I had the opportunity of closely examining the children at a country school in Essex, and of comparing with them children from large schools in the East of London (the Ben Jonson Schools) as well as the waifs and strays who were received into Dr. Barnardo's homes at Barkingside, and to note the effects of discipline, training, and a regular dietary upon the latter class after the lapse of a number of years.

This special experience was placed before the Inter-Departmental Committee to inquire into physical deterioration, and is printed in their report. For some years past I have been a student of psychiatry, being resident physician to one of the largest of the metropolitan asylums for the insane, where are collected together those who from ancestral and environmental defects have fallen by the way, those who constitute the derelicts, the "misfits" and the unsuccessful competitors strewn along the path of our progressive civilisation.

As a study of the different forms of bodily disease teaches us in regard to the resistance and the correlation of bodily organs, so investigations into the forms of mental disease inform us as to the limitation of the mental functions by heredity and temperament, how mental processes grow and decay, how inter-related they may be, how they are arranged, and how much resistance they can offer to stress and disease. I advance this much to indicate my interest and experience rather than my ability to deal with the subject.

I propose to divide my remarks into three Sections: firstly, that which deals with the psychology of the child, giving an analysis of the stages of growth, and how mental action and development take

place. Secondly, to offer suggestions based upon this analysis, as to training and education. Finally, I propose to show how intimately related are mental and bodily processes, and how mental improvement progresses simultaneously with improvement in the physical condition. In other words, how necessary for healthy mental action are a healthy body and a healthy environment.

The great attention paid in recent years to the study of what is called "genetic psychology," that is, to the dawn and gradual growth of mind, which, besides being one of the most interesting sections of the study of mental processes, has also been most fruitful in results. It has led to the discovery of an enfeebled group of children, many of whom grow up to be the inmates of reformatories, prisons, and asylums, unless specially cared for.

Such mental defectives have been ascertained to exist in from 1 to 2 per cent. of all children in the elementary schools of London, but by provision under the Blind and Deaf Act of 1893, and the Epileptic Act of 1899, means have been found for the teaching and training of these children, so that they may become useful citizens, and if not so much, then to prevent deterioration and helplessness. Moreover, the fact of identifying these children helps to draw attention to the causes of mental defects and their prevention, through the discovery of sight troubles, throat and ear disease, special fevers, such as scarlet fever, neglected adenoids and nasal diseases, tuberculosis and epilepsy.

By special and early attention to these remediable conditions many children are saved from becoming mental defectives, and are thereby made helpful in contributing to their own support, instead of being a dead weight upon the already over-burdened rate-payer. The study of mind is essentially a complex and difficult task, and in order to obtain reliable conclusions it requires that the investigator should have some knowledge of the principles of general psychology. He needs to know what are characteristics of the child as well as what are exceptional to it, and he must also understand the normal or healthy mind before he can rightly appreciate and apprehend what are departures therefrom, and how these may be prevented or modified by certain rules and regulations properly applied, One may legitimately ask at this point, why so much care and study should be exercised over this aspect? The answer is that "mind" reveals itself in every change of our daily lives. It is "mind" that has discovered the Laws of Nature, mind that has advanced the progress of science, evolved the method by which man has used the forces of Nature for his own service, organised human

institutions, established order and government, and made it possible for men to live together as they do in a safe community united in common action. In the mental study of children we have a gradual growth from primitive sensations and memories, from simplicity and innocence to discrimination and self-consciousness. Here we have the absence of the disturbing effects of introspection, and of the element of personality witnessed in the adult, and which makes the study of childhood so interesting, if not fascinating. Child response is at first mainly muscular and is spontaneous in action, spontaneity and reflex movements giving rise to the sense of muscular feeling and tension which yield information as to size, shape, weight, and distance. With the commencement and rise of different sensations, especially of sight, hearing, and touch, a discrimination and a preference is evinced by their comparison which helps to the formation of judgment. Imitation, which is one of the most characteristic features of nerve action, subsequently appears as a primitive faculty, and is a necessary antecedent to the acquisition of speech, right or left handedness and of handwriting, and these are accompanied by the development of the personality and of social consciousness. Reflex movements and spontaneity of action in the child, cause its conduct to be pure and uninfluenced by calculation, duplicity and gain. As a "fond grandpapa" says, "children have no axe to grind," and they have no conventions or prejudices roused by their social environment, such as those engendered later by social ambitions, importance, wealth, beauty, position, or birth.

The range of psychological study from the earliest awakening of the child-mind to the fully developed mind of man is exceedingly extensive, for the mental plane in early life is even lower than it is in most mammalians. The young guinea pig, for instance, is as clever at three days old as he ever will be, whereas the human mind does not reach its full power until after the age of twenty-five years, and although it is difficult to fix any definite time at which the various mental processes rise, this evolution must depend upon the slower or faster development of the brain and nervous system, as may be seen by retarded maturity on the one hand and youthful precocity on the other. Mental processes have their expressions evidenced by various physical correlations, such as the facial, lingual, vocal and general muscular contractions, indeed, the face is looked upon as the pole-star of the expressions.

It is possible to experiment in regard to the mental reaction of children, and much information has been obtained in regard to the mind through observation of their instincts, impulses, cries, muscular

efforts and movements, their general expression, personal preferences, and more particularly by observation of the games in which children participate.

Through the record of such observations an extensive literature has accumulated in regard to child-life which has afforded most valuable information for teaching purposes. As we all know, the occasion when the child is sent to school is to most children a vast experiment, and some have succumbed in the process from irretrievable mental and moral damage, whilst others have been maimed through a wrong application of educational measures. So strongly do I feel on this subject that I am of opinion that girls of the middle and upper classes should receive all their instruction at home. Children cannot possibly receive too much of their mother's love. This refers especially to girls, the boys of necessity must turn out early. For this and many other reasons the mental hygiene of childhood has received much and serious consideration.

Possibly most of us know that the gradual development of mind takes place according to certain fairly uniform conditions which merit description as general truths, and a knowledge of these being essential, they are a preliminary to our text and a necessary presupposition to it, and I therefore venture to enumerate them.

We can fairly claim, I think—and facts support the assumption—that mind has its commencement with the first appearance of life, and that it evolves and develops upon the ascending scale of animal life. The methods of ascertaining facts about mind are open to every one, and although there are many mental variations through temperament, even among healthy persons, the methods used are yet reliable. One is that of introspection, which consists in analysing, noting and describing one's mind in its various phases of emotion, memory and association; the other that of examining and experimenting upon the mind of others, to ascertain what differences in action result under the same set of circumstances and from the same stimulation. A knowledge derived from these methods will considerably assist parents and teachers to make the most of the endowments presented to them in children, and will enable them to secure the growth and development of mind along normal lines.

In addition to introspection, the mind may be viewed from two other aspects—(1) that of a receiving apparatus, and (2) that of an acting or "willing" one, which at the same time also "feels" and is outwardly represented by speech and conduct. "Feeling" is an aspect on the "receiving" side, and may be looked upon as midway between receiving and acting. All action is guided by feeling, either

pleasurable or painful, and further degrees of this feeling are represented in the emotions and in the sentiments. On the reception side there are certain avenues which give the mind the experience it has, and these are the various sensations, by far the most important being the special senses and the sense of muscular action. Romanes described the feelings brought into the mind by the senses as percepts, the different kinds of perceptions as recepts. The water-fowl alighting on land or water had different recepts of the sensation of touch, and adapted itself accordingly. The combination of recepts into ideas he called concepts. There are other sensations also, such as those from the joints, which give the feeling of equilibrium and balance, the organic sensations from the various internal organs and those of heat and cold. It is these which give the mind the material to work upon, and in the child they are incessant. They tend to be retained by memory and to be arranged together in like groups through the process described as "association." The mind then tends to focus these materials together by a process described as "apperception," combining them into groups or generalities and storing them as experience, by which standard every new experience is judged or compared—a process described as "assimilation." Some national or local excitement secures for the schoolboy a whole holiday; through assimilation, any like excitement causes him to expect similar treatment, and he thus argues from the particular to the general. These three tendencies of the mind—viz., apperception, association, and assimilation, form the basis of introspection on the reception side. On the side of action or conduct, introspection of our consciousness shows us two definite types, action as the result of instinct, and action as the result of thought or feeling. Thought or feeling when prompting to conduct are causes of "motor suggestion" or "motives," and when we are able to deliberate upon these causes of action, whether they be perceptions, abstract thought, fancy or imagination, and when we act after a period of reflection, then the motive is described as "will," this term being used whenever a "deliberate" motor action takes place.

To every motor act of the child there is a mental side; in other words, a "motor equivalent" corresponds to every mental state. This is very important from the child-mind aspect, as the recollection of definite lines of conduct or action is always associated with some corresponding mental state. Every day some new movement is learnt by the child and is associated with certain mental pictures. This recollection of muscular movements—the "kinæsthetic

equivalent" as it is called—continually adds to the child's mental volume and fulness.

As to memory, a fact may drop from the memory, but it never drops from the cerebral-cortex, which is wax to receive and marble to retain.

As a rule memory and association are weak in children. They depend upon three things, (1) innumerable repetitions, (2) intense stimulations of pain and pleasure, (3) concentration of attention, which is an individual factor, and is the plasticity or the inherent power of absorption possessed by each separate child. Up to four months of age, the life of the child is mainly organic and vegetative, and it is only in its second half-year that it begins to imitate—firstly its own cooing sounds, which is "simple" imitation, and then a reiteration with a definite want behind it, when "persistent imitation" is noticed. Watch the child's efforts at imitation of writing, drawing, aud even speaking, and the struggles it endures before success is attained. Watch the contortions and the chaos of grotesque results before the proper movement comes out. After a time, and by the aid of imitation, which the growing imagination of the child constantly prompts it to seek, fuller and more adequate means are sought to represent its ideas. This "imitation" combined with the sense of touch and the muscular sense, helps it to attain further mental acquirements, but it must be insisted, that purposive acts for a definite end are accomplished in the first instance accidentally, and through spontaneous movements. Each successful acquisition is accompanied with a pleasurable sensation of something new having been acquired, a pleasing impression is left upon the memory, which after an interval recalls the same movement for the same purpose—illustrating the association between the mental picture and a muscular movement.

With the repetition of these movements a "habit" is formed, and a habit on the physiological side is only the passage of nervous currents through nerve material leaving their traces on the way. Later, as the various associations are formed, the habits become more complex.

Were it not for the faculty of "imitation" in children, an infant would always remain a creature of "habit" and further accomplishments would cease to be acquired. As it is, further adaptive movements are suggested by the successful ones for special ends, and intelligence comes to their aid, assisting in the further development of purposive acts, so that a child develops acquirements in spite of "habit," and, consequent upon the growth of successful imitation, it

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begins to feel that there is an identity between itself and those it copies. Its mother, teacher, or nurse, each exhibits certain emotions and actions which the child imitates. Watch the child, for instance, with its dolls and toys, what an imaginative exuberance it displays, limited only by its want of knowledge. It places every one it knows in different "doll actions."

As it grows, its mind is taken up by the wonderful, and it begins to be interested in fairy tales, and after this in adventure. Later, its imagination begins to take interest in the imagination of others, and it delights in fiction, folk-lore, and poetry. Later still, probably about the age of ten, it becomes more critical and selects its own special book companions. It is interesting to watch the growth of mind from the first appearance of the imagination to the full development of the critical faculty.

These, with its own feelings, naturally modified by hereditary transmission, for heredity does not cease at birth, the child projects outwardly, and a feeling of identity or unity with others is established, together with an appreciation of inter-dependence, which become the basis of the social sense, which encourages common fellowship and relationship.

We have thus two aspects to consider in the mental study of childhood, the one of reception and the other of action. On the side of action progress is mainly attained by imitation and motor suggestion, which when frequently repeated lead to the formation of habits, and these in their turn become modified to form new adaptations. On the side of reception the child receives suggestions through the senses, seeing colours and movements, hearing sounds such as speaking and reading aloud, and feeling sensations of various kinds by which it distinguishes persons from things, the difference and the similarity between persons enabling it to appreciate one character from another. Up to the age of two the child's life is one of expectancy. It watches faces to find out what treatment to expect from the face and the voice of those they see but do not know; the different faces, voices, and behaviour towards them being to them the embodiment of uncertainty—which induces caution, fear, and distrust. It is only when the child reaches the age of about seven that its period of expectancy changes for that of self-activity; it begins then to exhibit its own agency and power through imitation of what others do in games and play and how they do it. This is the age of greatest effect upon the rise and growth of character. The child has been able to differentiate between right and wrong in regard to lines of conduct, but it has not hitherto subjected its own

agency or power to that of others, and has not submitted its will to much outside influence. It experiences at this age, and during the next few years, probably up to fourteen, the greatest difficulty to be obedient to authority or to depend upon its own conscience.

It has been hitherto the slave of its senses and not accustomed to exercise self-control and continence. It has been incapable of appreciating that highest form of self-restraint, viz., that which is self-imposed, but in its early life it has undergone the training for this or the reverse. The Jesuits, in their appreciation of training and discipline, are doubtless correct when they state that if they may control the child for the first seven years of its life, anyone may have it afterwards; and it is during this period that the germ of character, which is in part ancestral and in part educational and environmental, is being laid.

It is probably true that during the first seven years character is being formed, and during the two subsequent seven years that which was originally laid is consolidated and fixed.

It is character alone which is the pearl of great price, the source of self regulation, which establishes the earliest control of impulses, and which witnesses the first commencement of the voluntary adoption of higher ideals. The great distinction between man and the higher animals consists in this harmony between discipline and freedom—the power of self-regulation, or, in other words, the power to say "No," and it is this power of educability, *i.e.*, to form adaptations, which distinguishes the mental life of the child from the instinctive life of the lower animals. This "inhibition" is essentially characteristic of the higher man, whose line of conduct depends far more upon restraint than upon action.

The highest acquisition consists in focussing together and concentrating into one united whole, the various emotions, sentiments, feelings, and thoughts. In children, who are creatures of the senses, the power to resist temptation to sensuous gratification is exceedingly feeble.

The earliest appearance of "will" in the child is seen in the power to fix the attention, which is really the first act of the will. An idea or thought occurs; it is followed by voluntary movement. This gives rise to pleasure from something attained, and the movement is repeated. Indeed in children movements effected are the chief joys of life! Ideas thus pass into action, but the pleasurable sensation experienced arrests action temporarily and the child hesitates, directs attention to its own power, and then desires that the act should follow. As its self-knowledge grows, the child begins to desire the

begins to feel that there is an identity between itself and those it copies. Its mother, teacher, or nurse, each exhibits certain emotions and actions which the child imitates. Watch the child, for instance, with its dolls and toys, what an imaginative exuberance it displays, limited only by its want of knowledge. It places every one it knows in different "doll actions."

As it grows, its mind is taken up by the wonderful, and it begins to be interested in fairy tales, and after this in adventure. Later, its imagination begins to take interest in the imagination of others, and it delights in fiction, folk-lore, and poetry. Later still, probably about the age of ten, it becomes more critical and selects its own special book companions. It is interesting to watch the growth of mind from the first appearance of the imagination to the full development of the critical faculty.

These, with its own feelings, naturally modified by hereditary transmission, for heredity does not cease at birth, the child projects outwardly, and a feeling of identity or unity with others is established, together with an appreciation of inter-dependence, which become the basis of the social sense, which encourages common fellowship and relationship.

We have thus two aspects to consider in the mental study of childhood, the one of reception and the other of action. On the side of action progress is mainly attained by imitation and motor suggestion, which when frequently repeated lead to the formation of habits, and these in their turn become modified to form new adaptations. On the side of reception the child receives suggestions through the senses, seeing colours and movements, hearing sounds such as speaking and reading aloud, and feeling sensations of various kinds by which it distinguishes persons from things, the difference and the similarity between persons enabling it to appreciate one character from another. Up to the age of two the child's life is one of expectancy. It watches faces to find out what treatment to expect from the face and the voice of those they see but do not know; the different faces, voices, and behaviour towards them being to them the embodiment of uncertainty—which induces caution, fear, and distrust. It is only when the child reaches the age of about seven that its period of expectancy changes for that of self-activity; it begins then to exhibit its own agency and power through imitation of what others do in games and play and how they do it. This is the age of greatest effect upon the rise and growth of character. The child has long been able to differentiate between right and wrong in regard to certain lines of conduct, but it has not hitherto subjected its own

agency or power to that of others, and has not submitted its will to much outside influence. It experiences at this age, and during the next few years, probably up to fourteen, the greatest difficulty to be obedient to authority or to depend upon its own conscience.

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acknowledgment of its personality by those about it, and this instinctive craving for approval for itself and its conduct becomes a valued instrument in education.

The "will" to do comes first, then the will "not to do," or "inhibition," later. The command which the child has over its muscles is closely related to the development of the will, this command therefore should be as complete and perfect as possible.

For this reason drill, games, and suitable companionship constitute important training methods for discipline. In the control of the child's will not only the immediate but also the remote effects of action begin to be appreciated, and in the tendency to pursue definite ends we find the growth of intelligence, the beginning of its ethical development—*i.e.*, the will to choose the right. The best mental discipline in early life is obtained when happiness is secured through a sense of harmony with the surroundings, and such harmony is ensured through approbation from others, and is the basis of filial love and family life.

Later, as the child grows, it learns to pass judgment upon its own actions, and to submit itself to the influence of ideals as to its own character. The recognition of worthy and enduring ideals are learnt by the child mainly through experience, and the feeling it obtains of the relative moral value of different courses of action are also acquired by knowledge through experience and training. Its lower impulses and appetites are controlled at first in accordance with certain principles of conduct laid down for it, so that when the child awakens to a knowledge of these principles it finds that they have been hitherto unconsciously recognised in his actual life and conduct, and the child finds he can sacrifice immediate gratification for more distant ideals, he can unconsciously through his training defer present satisfaction to future happiness, and he even finds his greatest pleasure and freedom in so acting. This discipline entails obedience, which is secured by creating a desire for right conduct, and not by coercion.

"Don't say don't" is a pedagogical maxim. Negative training fixes the attention upon a contrary idea and the carrying out of the contrary suggestion, which immediately tends to become a motive to action. The child should be taught to do something rather than nothing, for the will not to do is more difficult to cultivate and comes later than the will to do. Self-knowledge and self-judgment in the child prepare the way for self-direction and guide the child by the power of suggestion to learn the bad effect of outbursts of emotion, and such knowledge yields ideals which will be

a comfort to him and which will stand by him in periods of need, and all these strengthen and mould his will. The thoughts must be guided by strong interests in what is in hand, or by the force of personal affection, praise, or a reverence for what is right, until the will resolutely adheres to the higher motives. The "expulsive power of a new affection" was long recognised by Chalmers as better than negative training, which is unproductive and without power on the positive side. The faculties of suggestion and imitation are fundamental in child life, and these can and should be worked upon and used for influencing conduct on right lines, so that in the end the will is led to choose the right.

From what we have said, and from the fact that one-third of the population of this country consists of children under 15 years of age, also from the fact that over 7½ millions of children attend the elementary schools of this country, at a cost to the taxpayers of 21 millions a year, the study of children and their education has become a vital duty. In London alone there are about 760,000 children on the full roll attending our elementary schools. All these children have imposed upon them a system of education which assumes equal competence, equal mental capacity and equal physical strength. The same code provides for all alike, irrespective of individual differences and regardless of variations in human aptitude. The slower and weaker children in consequence find it beyond their strength to keep up with others, overstrain and unsuccessful efforts seriously affect their mental integrity, and they eventually break down, drifting into a class which, instead of being an asset to the State, becomes a burden upon the community. It is only too well known that there are among the children brought up in our elementary schools a high proportion of those who are unstable and nervously susceptible, who by their very presence hinder the progress of others, and who themselves, from the weakness of their faculties, are unable to benefit by the ordinary scheme prescribed for them. There are no less than 7,000 such cases—one per cent. of the total—in London alone, who through mental and physical defects are not fitted for such an intellectual training, but who would derive much benefit from an out-door or agricultural life, combined with a modified teaching. Probably, as Dr. James Kerr points out, there is an equal number who are also as defective, although not so classed.

The defective pupils are usually regarded as of two types, based upon the sensori-motor aspect of brain functions, the one whose sensory impressions are tardily received and who are abnormally slow in translating these into action. Such children are not "suggestible,"

PHYSICAL TRAINING IN RELATION TO FATIGUE.

By R. J. E. HANSON, M.A., M.B., B.C., R.N.V.R.,

Hon. Secretary Lord Roberts's Mansion House Council on National Training.

Read March 14th, 1907.

Dr. Hanson remarked, in the first place, that he should not tie himself down to the consideration of any one particular type of animal, but would commence with *Aves*, the most perfect exemplar of animal locomotion, for the structure of birds was beautifully adapted to progression. He alluded to the subject of migration and fatigue, and pointed out that even now this was very imperfectly understood, but was intimately dependent upon the feeding and propagation of the species. He could, however, indicate a few of the customary migration routes, and this was done by the aid of maps thrown upon the sheet. His point was that migration involved an enormous physical effort, or series of efforts, on the part of the bird, which efforts were, however, to a certain extent, aided by the fact that the migrant picks its way sagaciously, avoiding too close contact with mountain ranges or great ocean expanses—as, for instance, happens when they cross or skirt Switzerland. A well-known story of migration was that narrated in the Book of Numbers;* and in this instance we may suppose the quails had been blown from their course, and being exhausted by fatigue and hunger were easily captured, and did not form a wholesome repast for the people who gathered them up.

The Italians had done much towards the registration of observations on the subject. Birds might be said to undergo a sort of physical training before finally starting their long voyage, taking, as it were, preliminary and tentative flights during the period of their congregation, which would doubtless prove conducive to increased powers of endurance. The male bird was usually the stronger of the two, and led the way when migrating. But despite their great

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* Numbers xi. 31–33.

powers of flight, birds undoubtedly died in large numbers during these journeys. Many, for instance, had been captured in an exhausted state in mountain defiles, at sea, and elsewhere, and on the sea-coast, to which they were apparently attracted by the gleam of the breaking surf, and outline of hill and shore.

In the case of *Homo sapiens*, the child underwent an imitative training of gradually increasing complexity, in order that it might attain to average dexterity. First it learnt to crawl, to clamber, then to walk, then to run; finally it engaged in sports more or less involving each of these forms of exercise. In most countries much labour was connected with agriculture, and women did a great deal of lifting, digging, and carrying hay, etc., labouring all day by performing much physical work. In some instances peasants gradually acquired, as their ordinary gait, that stooping attitude assumed when carrying heavy loads. Some views illustrating these points were shown. Here the outward signs of fatigue became permanently stereotyped in the fatigue attitude of the bent and over-taxed frame.

Dr. Hanson insisted that physical training should be carefully graduated, commencing with simple exercises and leading to more complicated ones, and this would involve the least strain on the tissues. It was easy to over-train, and over-training generated inability to get rid of waste products. Careful training should improve every tissue in the body; each muscle should become more "supple" and efficient as the result of judicious exercise. Exercise should be so regulated that holding of or straining the breath might not be necessary. Wear and tear had to be made good; the muscles became slightly acid after work through the increase of carbonic acid gas, and the ashes of combustion needed to be removed, the muscles and other tissues themselves generating waste products.

Fatigue was the natural result of work done by nerves and muscles and by products formed in the body, at the FIRST displaying its effects in the central nervous system by heightened irritability. It rendered us at a later stage unable to perform even a small amount of work, and checked those chemical processes so necessary to our well-being. This was illustrated by views of boat racing (the Diamond Sculls and other events), shewing competitors fresh and strong at the start, and exhausted, and consequently assuming incorrect positions in the boat, at the finish. The same physical truths were illustrated by views of canoeing, and of lumbering in Canada and elsewhere, this latter involving very arduous labour.

Running, whether a short distance at great speed, or a longer distance at less speed, always required endurance. This was shewn

by the fact that a long race could not be run in a time proportionate to that occupied by a shorter one: if, for instance, 100 yards be run in 10 seconds, 1,000 yards would be run not in 100 but perhaps 150 seconds. The amount of *work* done, however, was the same in a 100-yards race whether run in one time or another; but the question of time was none the less *the* important factor. The effect upon the right side of the heart was a feature here, as the hampered respiration dams back the flow of blood through the lungs and heart, and may lead to *acute* fatigue. Similar truths were exemplified in ski racing, where great fatigue was caused by climbing upwards to the starting point after the downward run. An extreme case of this foolish practice, which led to an attack of syncope, was mentioned by the lecturer.

Dr. Hanson narrated, with some detail, a case of dangerous exhaustion consequent upon a cross-country race. The runner had felt below par before the race, and had not taken his customary nourishment. At 3 p.m. he started to run ten miles, and finished in very fair time. He then went to change his clothes, his friends noticing nothing special about his appearance; but some ten minutes later he fainted, and was insensible for twenty-four hours. During the race he had not perspired as usual. The athlete had failed to get rid of the poisonous products of fatigue.

The lecturer then spoke of the objects that should be aimed at in training, the chief one being to reach a high stage of efficiency by gradually increasing exercises involving no great strain—short bouts of exercises in *fresh* air. Photographs were displayed showing figures subject to great distress through over-exercise in various athletic contests. In hurdle racing also (of which a picture was shewn) the exercise involved very severe stresses; but it need not be supposed that a man exhausted after a race need suffer any permanent hurt if he had been efficiently trained. In wrestling, in which there was often little actual movement for a considerable time, much physical work was done. The general leanness of cats when compared with dogs was noticeable. The cat was a restless prowler; the dog was restful and fond of his straw bed unless actually "hunting."

Physical exercise, as it was practised now in London schools and in the services, was much improved. The naval code had been revised; the army would soon have a revised one. The London County Council Education Committee's Syllabus was very good. Its terms were explicit, and at the same time it left room for the teacher's own ideas; but it might be improved in its co-operative or "military" aspect.

The use of the side-drum gave go and spirit to the exercises. The teacher should be word-perfect in his instructions, as this gave great confidence to the pupil. Such exercises, however, had a tendency to neglect respiration, which was not sufficiently attended to in practice. The lecturer considered that something should be done to provide breathing exercises during school hours at regular hours in school, the best place for them being the open air.

Much might be done for the child *out of school*, and were this subject properly attended to the difficulty in providing recruits for the army would vanish. We should set up such out-of-school clubs or cadet corps as those in Natal and New Zealand, where they existed on a pattern which we might with advantage closely follow.

Work done in the City of London, where we have some 500 school cadets:—

Four of these boys were present on the platform, in uniform, with rifles. With these they performed various exercises, and the lecturer pointed out that fatigue of eye and body could be avoided by careful instruction in the "recruit stage" in the firing exercises.

> [The reader is referred to the article "Fatigue" in the 1907 Annual Report of the Medical Officer to the Education Committee of the London County Council.]

To secure economy and efficiency in the physical training of *Young England*, and to improve our character, intelligence, and physique, we could not do better than institute such a system of school cadet corps, leading on to the senior cadet corps, the rifle club, and the Territorial Army as just mentioned.

The cost of a battleship annually would be well spent by our statesmen in such a manner, and would prove a cheap form of national insurance.

If we examined the weekly time sheet of an average London school child, æt. twelve, we found that 41½ hours (on week days) are available for some form of instruction or play, as follows:—

Sleep	75 hours.	
School	27½ „	
Meals and journey to and from school ..	10 „	
Sunday	14 „	
Play and work.. ..	41½ „	(excluding Sunday).
	168 hours.	

The summer holiday should be used for training under canvas at a seaside camp every boy aged eleven and upwards, for at least fourteen days. The same for the girls. Until a statesman came forward to press this matter, our children would fail to receive full benefit from the expensive instruction with which we now provide them, and their little lives would fail to be as happy, useful, and healthy as they might so easily be made.

He trusted that the school cadets we expected from Canada, Natal, and New Zealand this summer might prove an object lesson to all in the mother country.

REPORTS OF THE COUNCIL

For 1906 and 1907.

The Report for 1906 was held over in anticipation of the amalgamation with the London Branch of the British Child-Study Association, but the negotiations were not completed till the end of 1907. A further Report for this year is appended to complete the record of the work of the Society.

In submitting their Tenth Annual Report, the Council have to record continued progress.

The work of the Society has actively advanced, and for the past year may be summed up as follows:—

1. Lectures have been given to aid the study of educational methods and the consideration of the environment best suited to the mental and physical development of children during their school life.

2. The published Transactions have disseminated the information and teaching contained in the lectures and addresses given before the Society.

3. The Society has co-operated with the British Child-Study Association in an investigation into the "teaching" power in elementary Schools.

4. Representatives from your Society have given evidence before the Royal Commission on the Feeble-minded.

5. Delegates appointed by your Society attended the Conference on Aftercare of the Mentally Defective, held in London, Conference of National Special Schools Union, at Bradford, and the Congress of The Royal Sanitary Institute, at Bristol; and representatives were appointed to the Second International Congress on School Hygiene, to be held in London, in August, 1907.

6. The recommendation of the Report of the Inter-Departmental Committee on Physical Deterioration relating to the establishment of a permanent Anthropometric Survey was considered, and representatives were appointed to a Deputation to wait on the Prime Minister.

7. A visit to Darenth Asylum Training School was made.

MEMBERSHIP.

There are now 135 members on the Register, which includes 14 Hon. Corresponding Members, 83 Ordinary Members, and 38 Associates.

During the year 4 Members and 6 Associates were elected, a much larger increase is needed if the Society is to expand and develop as the Council would wish.

PARLIAMENTARY.

The Council have taken into serious consideration the Report of the Committee on Physical Deterioration, and it has on two occasions been discussed at general meetings of the Society.

At these meetings the recommendations of that Committee as to the establishment of a permanent Anthropometric Survey were approved generally, as essential to the knowledge of the physical and mental condition of the children in the various classes of schools throughout the country, and to the determination of the fact whether that condition is or is not in process of deterioration.

The Council trust that means may be found to carry out the recommendations in question and to establish a bureau for continuous anthropometric survey on a basis sufficiently comprehensive to ascertain not merely the physical, but also the mental, condition of children, as evidenced by nerve signs, defects in eyesight, and other indications.

A Deputation to the Prime Minister was organised by the Anthropological Institute, and SIR EDWARD BRABROOK, C.B., Dr. G. E. SHUTTLEWORTH, Mr. J. KELLY, and Mr. E. WHITE WALLIS were appointed to represent the Society.

The Deputation to the Prime Minister was well received by SIR H. CAMPBELL-BANNERMAN, and it is hoped that it will result in the recommendations of the Committee being carried into effect.

The Education Bill was also considered.

A Sub-Committee had under consideration the advisability of approaching the Board of Education with reference to official recognition of qualifications for Special Teaching in the Teachers' Supplementary Register. It was felt that qualifications of Special Teachers should be entered in Columns A or B of the Main Register, which is a higher distinction.

THE ROYAL COMMISSION ON THE CARE OF THE FEEBLE-MINDED appointed in August, 1904 ("to consider the existing methods of dealing with idiots and epileptics, and with imbecile, feeble-minded,

or defective persons not certified under the Lunacy Laws; and, in view of the hardship and danger resulting to such persons and the community from insufficient provision for their care, training, and control, to report as to the amendments in the law or other measures which should be adopted in the matter, due regard being had to the expense involved in any such proposals, and to the best means of securing economy therein"), has continued to take evidence during the present year, but has not yet called upon the representatives of the Society. Evidence has, however, been given, in the capacity of representatives of other bodies or of private witnesses, by the following Members:—Mrs. E. M. BURGWIN, Miss H. GAVIN, Dr. J. KERR, Dr. G. E. SHUTTLEWORTH, Dr. F. WARNER, Dr. FLETCHER BEACH, and Dr. LANGDON DOWN.

The Commission is still sitting, and its report will be looked for with great interest by all members of the Society.

MEETINGS.

Seven meetings of the Council, six meetings of committees, and seven meetings with representatives of the British Child-Study Association have been held during the year.

By kind permission of the President the Annual Meeting was held at 7, St. James's Square on May 10th. The chair was taken by Mr. J. W. PALMER, Vice-President, when SIR EDWARD BRABROOK, C.B., delivered an address dealing with the forthcoming International Congress on School Hygiene. The Report for the year 1905 was adopted and the following officers were elected:—

PRESIDENT.

Rt. Hon. EARL EGERTON OF TATTON.

VICE-PRESIDENTS.

The Rt. Hon. EARL OF STAMFORD; LADY DOUGLAS GALTON; E. W. BRABROOK, C.B., F.S.A.; T. BRIDGWATER, LL.D., M.B., M.R.C.S.; RICHARD BIDDULPH MARTIN, M.P.; Rev. W. D. MORRISON, LL.D.; J. W. PALMER; G. H. SAVAGE, M.D., F.R.C.P., M.R.C.S.; Rev. T. W. SHARPE, C.B.; FRANCIS WARNER, M.D., F.R.C.P., F.R.C.S.

TREASURER.

RICHARD BIDDULPH MARTIN, M.P.

Sir R. N. HENSLEY, J.P., Miss RAVENHILL, T. B. HYSLOP, M.D., and R. DENISON PEDLEY, F.R.C.S.Edin., L.D.S., were elected to the Council in place of retiring members.

Sir EDWARD BRABROOK, C.B., was elected Chairman of the Council, and Dr. G. E. SHUTTLEWORTH, Vice-Chairman.

During the year two Courses of Lectures were held, in conjunction with the London Branch of the British Child-Study Association, and it is a source of much gratification to the Council to record the continued interest taken in this part of the work of the Society, the large attendances often filling the Parkes Museum, which the Society is allowed to use by the courtesy of The Royal Sanitary Institute.

It will be seen that in the selection of subjects and arrangement of the Lectures much care has been devoted to securing for those interested in Educational Methods and the Scientific Study of Child Life an opportunity of hearing and discussing the views of authorities on the various problems.

The Council trust that Members will offer short papers for the Members' Evenings, as these informal discussions are most helpful and suggestive and assist in directing greater attention to the individual conditions of mental and physical development and to the environments and needs of children.

The Council have again to record their sincere thanks to the Lecturers who have so kindly assisted them by delivering these instructive discourses, and to the Chairmen who, by their presence and support, have helped materially to promote this branch of the Society's work.

The Lectures were as follows.—

EIGHTEENTH COURSE.

Feb. 15.—Conditions of Children, Physical and Mental, in Resident Homes.

By ROBERT MILNE, M.D., C.M., Medical Officer, Dr. Barnardo's Homes and Hospitals.

Chairman—The Rt. Hon. the EARL STAMFORD.

Mar. 1.—Child Life in Japan.

By Miss MIYAKAWA.

Chairman—SIR LAUDER BRUNTON, LL.D., M.D., F.R.C.P., D.Sc., F.R.S.

Mar. 29.—The Psychology of Reading.

By E. WHITE WALLIS, F.S.S.

Chairman—J. W. SLAUGHTER, Ph.D.

NINETEENTH COURSE.

Oct. 23.—Discussion on the Medical Supervision of School Children.

Opened by PROF. H. R. KENWOOD, M.B., D.P.H.; Mrs. M. SCHARLIEB, M.B., M.S.; and T. B. HYSLOP, M.D.

Chairman—T. J. MACNAMARA, M.P., LL.D.

Nov. 1.—Open-Air Recovery Schools in Germany.
By F. ROSE, M.A., Ph.D., Assist. Educational Adviser, L.C.C.
Chairman—SIR R. M. HENSLEY, J.P.

Dec. 13.—How Imperfect Conditions of Eyesight may be detected and guarded against.
By HAROLD BARR GRIMSDALE, M.B., F.R.C.S.
Chairman—SIR EDWARD BRABROOK, C.B.

VISIT TO DARENTH ASYLUM TRAINING SCHOOL.

The fourth visit to an institution of special interest to those engaged in the Scientific Study of Children was, by the kindness of the Metropolitan Asylums Board, arranged to Darenth Asylum Training School. The system of instruction carried out at the school was explained by Dr. ROTHERHAM, Medical Superintendent, and the Medical Officers. An inspection was made of the Buildings and Class-rooms, the patients being engaged in basket, brush, and mat making, carpentering, weaving, and other occupations, and the young children were seen at class lessons; after which the members were hospitably entertained at tea by the Asylum Sub-Committee.

Some 150 members and friends attended; special arrangements having been made with the railway company for reduced fares and for conveyances.

The sincere thanks of the Society were accorded to the Chairman (Mr. J. T. HELBY), the Committee, the Medical Superintendent, and the Staff for their courtesy and hospitality.

ACTION IN CONCERT WITH OTHER SOCIETIES.

The Joint Committee of the Childhood Society and the London Branch of the British Child-Study Association, which was appointed as the result of the President's suggestion to consider the possibility of combining with other Societies having kindred objects, has continued its work with most satisfactory results, by arranging Joint Courses of Lectures, which have been well attended and favourably received. Before joint action was taken in the matter much overlapping occurred. Meetings were often arranged for the same date, as the result of which each Society suffered. The combination causes a better attendance at the meetings and the co-operation secures greater power and increased influence.

The co-operation has resulted in an "Investigation into the Teaching Power in Elementary Schools" being conducted, and a report thereon being published.

The Council feel that much more could be done by a closer co-

operation between the two Societies, and as a result of two years' working together on the basis of (1) Arranging for Courses of Lectures, (2) Sending Petitions to Parliament, (3) Conducting Investigations, it is now in a position to recommend further action to combine the interests and objects of each in an amalgamated Society, thereby gaining increased influence, and enabling them to appeal with greater force for public support. The basis on which an amalgamation is proposed has already been communicated to the members, and it is anticipated that the new arrangements will commence with January, 1908.

By the courtesy of the Central Council of the British Child-Study Association, an invitation was sent to members to attend the Annual Conference of the Association, held at Cheltenham.

Representatives of the Society were delegated to attend Meetings as follows:—

Conference on Aftercare of the Mentally Defective.
SIR EDWARD BRABROOK, C.B., and SIR ROBERT HENSLEY, J.P.

Congress of The Royal Sanitary Institute, at Bristol.
PROF. H. R. KENWOOD and Miss A. RAVENHILL.

Second International Congress on School Hygiene.
SIR EDWARD BRABROOK, C.B., and Miss A. RAVENHILL.

Conference of the National Special Schools Union, at Bradford.
Mrs. KEIR TURNER.

Delegates from the National Union of Teachers, National Special Schools Union, and The Royal Sanitary Institute are appointed to serve on the Council of the Society.

Miss K. STEVENS, who was visiting the United States, carried a cordial message to American Child-Study Societies, with an offer to exchange transactions and publications.

TRANSACTIONS.

Vol. III. of Transactions, issued during the year, continues to mark the advance and development of the Society's work. It is a cause of regret that funds do not allow of the publication of all the Papers and Lectures read before the Society, and of issuing the Transactions at shorter intervals, as applications are often received for full reports of the meetings after short notes of them have appeared in the Press. This means of disseminating a knowledge of the work done by the Society is one that could be considerably extended. The thanks of the Society are due to Mr. J. W. PALMER, who has kindly edited the Transactions.

In addition to this volume, Miss MIYAKAWA's lecture on Child Life in Japan was published in pamphlet form.

During the year the publications of the Society have been sought by the Spanish National Congress on the Protective Education of Vicious and Helpless Children, the Director of Education, Chicago, and others.

LIBRARY.

A number of works on Educational subjects have been acquired, and, in order that the collection may be as useful as possible, arrangements are made for members to borrow volumes by applying to the Secretary and paying cost of postage. Members have taken advantage of these arrangements, and several books have been lent out during the year.

Members are particularly invited to assist in making the Library as complete as possible by presenting books, and by asking the authors of works of interest to the Society to send presentation copies.

ALTERATION OF BY-LAW.

At the suggestion of a Special Committee which was appointed to consider the financial condition of the Society, the by-law relating to the subscription to the Society was altered, so that Members elected after December, 1906, will pay £1 1s. per annum, and Associates elected after December, 1906, 5s. per annum. It should also be noted that the London Branch of the British Child-Study Association increased their subscriptions to 5s. per annum.

PUBLICATION FUND.

The sums received during the year amounted to £3 2*s.* 6*d.*

Without this Fund (for which appeals must continue at present) it would be impossible to issue Transactions, the general funds of the Society being insufficient.

The Council record their thanks to those who have contributed to the Fund, and trust that additional support will be given, and that members who have not already made contribution may do so in order that the publication may be continued.

FINANCE.

The balance in hand at the close of the year amounted to £12 12s. 9d.

It is hoped that members will endeavour to make the objects of the Society known to their friends, as it is desirable that there

should now be some considerable increase of membership to enable the influence of the Society to be fully exerted in many useful directions.

The Annual Subscription of Members and Associates amounting to only some £40, it is necessary that payment should be received regularly on Jan. 1st each year.

1907.

The Eleventh and last Report has to record the continuance of the work of the Society; during the period the Council were mostly occupied with the carrying through of the negotiations for amalgamation with the London Branch of the British Child-Study Association and the Central Council of the Association.

AMALGAMATION.

The Council being informed that the London Branch of the British Child-Study Association had approved the Basis of Constitution and empowered its Committee to take the necessary steps to effect the amalgamation with the Childhood Society, a Special General Meeting was held on February 28th, when it was resolved:

(1) To confirm the following resolution of Council of January 14th, 1907:—

> "That the proposals of the British Child-Study Association of July 7th, 1906, commend themselves to the Council of the Childhood Society, and the Council would recommend the Childhood Society to join the London Branch of the British Child-Study Association, and form with it a single constituent Society under the scheme when the scheme is carried into effect."

(2) To approve the basis of constitution for amalgamation; and

(3) To empower the Council (*a*) to take the necessary steps for amalgamation with the London Branch of the British Child-Study Association; and (*b*) to appoint fifteen members to the first Council of the new Society, and four Delegates to the Central Council.

The Council at their meeting on May 28th appointed SIR EDWARD BRABROOK, Dr. FRANCIS WARNER, Dr. FLETCHER BEACH, and Mr. WHITE WALLIS as delegates to the Central Council.

A joint meeting of the Council of the Childhood Society and the London Branch of the British Child-Study Association met

on June 18th to carry out the amalgamation, and the following were appointed as the fifteen members of the Childhood Society on the Council of the Child-Study Society London:—SIR EDWARD BRABROOK, SIR RICHARD MARTIN, Dr. FLETCHER BEACH, Mrs. DICKENSON BERRY, Dr. FRIEDEBERGER, Miss H. GAVIN, Miss JOBSON, Prof. KENWOOD, Dr. KERR, Dr. KINGSFORD, Mr. DENISON PEDLEY, Mr. SIDNEY SPOKES, Mrs. KEIR TURNER, Mr. WHITE WALLIS, Dr. F. WARNER.

LECTURES.

During the year one Course of Lectures was arranged in conjunction with the London Branch of the British Child-Study Association. The Lectures were as follows:—

Jan. 31.—Our Teeth: Why we lose them; and how we may keep them. (*Illustrated by Lantern Slides.*)
By R. DENISON PEDLEY, F.R.C.S.(Edin)., M.R.C.S., L.D.S.
Chairman—SIR EDWARD BRABROOK, C.B., V-P.S.A.

Feb. 14.—The Care of the Throat, Nose, and Ears in School Children.
By ST. CLAIR THOMPSON, M.D., F.R.C.P., F.R.C.S.
Chairman—RT. HON. THE EARL OF STAMFORD.

Feb. 28.—Mental Training in Childhood.
By ROBERT JONES, M.D., F.R.C.P.
Chairman—SIR VICTOR HORSLEY, M.B., B.S., F.R.C.S., F.R.S.

Mar. 14.—Physical Training in Relation to Fatigue. (*Illustrated by Lantern Slides.*)
By R. J. E. HANSON, M.A., M.B., B.C., R.N.V.R.
Chairman—Maj.-General SIR FREDERICK MAURICE, K.C.B.

VISIT TO DR. BARNARDO'S GIRLS' VILLAGE HOMES, BARKINGSIDE.

The fifth visit to an Institution of special interest to those engaged in the scientific study of children was, by the courtesy of the Director, Mr. WILLIAM BAKER, M.A., LL.B., made to Dr. Barnardo's Girls' Village Homes at Barkingside on June 30th (Founder's Day). Facilities were afforded to see the Village Homes, Hospital, Sanatorium, Day Schools, Schools of Embroidery, Cooking, Dressmaking, etc., and Demonstrations of boys and girls at work at various trades were given.

Many members availed themselves of the invitation, and the thanks of the Society are due to the authorities of Dr. Barnardo's Homes for the facilities so kindly extended to the members.

LIBRARY.

Additions were made to the Library during the year, and members availed themselves of the privilege of borrowing books.

The books contained in the Library will be handed over to the Child-Study Society London.

TRANSACTIONS.

The Volume, No. 4, concludes the record of the Society's work. The Council believe that the issue of the Transactions has done much to advance the objects of the Society, and are glad to know that so many of the Papers and Lectures have been placed on permanent record. This has only been done by the assistance of members who have contributed to the Publication Fund, a list of whose contributions is given at page 87.

FINANCE.

It is a source of satisfaction to the Council to report the funds in hand have admitted of a final volume of the Transactions being issued, and to close the affairs of the Society, knowing that during the eleven years it has been established, its small income has, by careful working, been sufficient to meet the expenditure. The statement for the year is given at page 86.

CONCLUSION.

The Council desire in conclusion to express their sense of the valuable services that have been freely rendered for so many years by the Honorary Secretary, Mr. W. J. Durrie Mulford.

EDWARD BRABROOK,
Chairman of Council.

W. J. DURRIE MULFORD,
Hon. Secretary.

THE CHILDHOOD SOCIETY.

STATEMENT OF RECEIPTS AND EXPENDITURE

For the Year 1906.

	£	s.	d.	£	s.	d.
By Balance from last a/c				42	15	6
„ Subscriptions, 1903	0	10	6			
„ „ 1904	1	11	6			
„ „ 1905	3	16	0			
„ „ 1906	35	3	0—	41	1	0
„ „ (in advance) ...				1	3	6
„ Publication Fund				3	2	6
„ Donations				5	5	0
„ Lectures, B.C.S.A. Share of Expenses	0	16	5			
„ „ Receipts	7	8	0—	8	4	5
„ Sale of Publications				2	7	4
„ Receipts, Visit to Darenth				9	2	2
				£113	1	5

	£	s.	d.	£	s.	d.
To Printing and Publications				40	0	0
„ Stationery				11	4	0
„ Postage				7	0	6
„ Use of Lecture Room				4	17	6
„ Incidental				2	2	0
„ Assistance				5	5	0
„ Honorarium				21	0	0
„ Visit to Darenth				8	19	8
				£100	8	8
Balance at Bank Jan. 1st, 1907 ...	11	17	5			
Cash in hand	0	15	4			
Balance ...				12	12	9
				£113	1	5

Examined and Audited,

J. W. PALMER.

W. J. DURRIE MULFORD,
Hon. Secretary.

THE CHILDHOOD SOCIETY.

STATEMENT OF RECEIPTS AND EXPENDITURE

For the Year 1907.

	£	s.	d.	£	s.	d.
By Balance on last a/c				12	12	9
„ Subscriptions, 1905	0	2	6			
„ „ 1906	2	17	6			
„ „ 1907	38	4	6			
„ „ (In advance) ...	1	3	6	42	8	0
„ Sale of Publications...				0	9	4
„ Lectures				8	14	0
„ Publication Fund				1	3	0
				£65	7	1

	£	s.	d.
To Printing and Publications	34	0	0
„ Stationery	4	10	0
„ Postage	7	13	5
„ Use of Lecture Room	3	0	0
„ Subscriptions in advance due to Child-Study Society London	1	3	6
„ British Child-Study Association, London, Share of Lecture Receipts	1	12	6
„ Honorarium	10	10	0
„ Incidental	0	19	3
„ Balance left for Postage of Transactions, etc. .	1	18	5
	£65	7	1

W. J. DURRIE MULFORD,
Hon. Secretary.

Examined and Audited,
J. W. PALMER.

List of Donations to the Publication Fund.

	1902.			1903.			1904.			1905.			1906.			1907.	
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	s.	d.
Rt. Hon. Earl Egerton of Tatton.	10	0	0	.....			10	0	0	10	0	0					
Rt. Hon. Earl of Stamford...	1	1	0														
Lady Galton	10	0	0	.....			5	5	0	2	0	0					
Sir Richard B. Martin, Bart..	10	0	0														
Fletcher Beach, M.B.	1	1	0														
Mrs. Dickinson Berry, M.D..		10	6		10	6		10	6		10	6					
Sir Edward Brabrook, C.B..	1	1	0		10	6	.....				10	6		10	6		
T. Bridgwater, LL.D.	1	1	0														
F. J. Campbell, LL.D.	1	1	0	.....				10	6								
R. P. Cockburn, M.D.	.....			.....			.....				10	6					
S. de Brath	1	1	0	4	0	0											
Miss Ellis	.....			.....				2	0	.....						2	0
M. Friedeberger, Ph.D.		10	6														
Miss Hilda Gavin.....		10	6		10	6		10	6	1	1	0					
W. Hamilton Hall, M.R.C.S..	1	1	0														
Sir Robert Hensley, J.P.....	.....			.....			.....			1	1	0		10	6	10	6
Mark Hughes, B.A.		10	6														
Miss T. M. James.....		5	0		2	6											
Miss E. E. C. Jones		10	6		10	6											
T. H. Jones		5	0														
Prof. H. R. Kenwood, M.B...		10	6	.....				10	6		10	6					
J. Kerr, M.D.....	1	1	0														
R. Langdon Down, M.B.....		10	6														
Miss Lawrence	.....			.....			.....			1	1	0					
Miss Matthews	.....			.....			.....				5	0					
Miss A. Mizen		2	6		1	0											
C. G. Montefiore	2	2	0	3	0	0	.....			2	2	0					
Mrs. Owen.....		2	6														
Miss Palmer		2	6														
J. W. Palmer.....		10	6		10	6	.....			.....				10	6		
R. Denison Pedley, L.D.S. ...	.....			.....			.....			1	1	0					
Miss F. B. Poynton		2	6		2	6		2	0		2	6					
Miss A. Ravenhill.....	.....			.....			.....				10	6					
T. G. Rooper, H.M.I. (decd.).	2	2	0														
G. H. Savage, M.D.	1	1	0	.....			.....			1	1	0					
Sidney Spokes, J.P., M.R.C.S.	.....			.....			.....				10	6					
G. E. Shuttleworth, M.D. ...		10	6	.....			.....				10	6					
Rev. T. W. Sharpe, C.B. (decd.)		10	6														
E. White Wallis, F.S.S.	2	2	0	1	1	0	.....			1	11	6	1	1	0	10	6
Francis Warner, M.D.	1	1	0	.....			.....			.....				10	0		
G. Udny Yule	1	1	0	1	1	0	.....			1	1	0					

LIST OF MEMBERS,

ASSOCIATES, AND CORRESPONDING MEMBERS,

To December, 1907.

Members.

Abrahall, Miss Hoskyns.
Beach, Fletcher, M.B., F.R.C.P., M.R.C.S.
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WARNER, Miss.
WARREN, Miss N.
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WILLIAMS, Miss Bulkeley.

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Walter E. FERNALD, M.D. (Waverley, Mass.)
G. E. GAY. (Malden, Mass.)
G. Stanley HALL, PH.D., LL.D. (Clark University, U.S.A.).
W. T. HARRIS. (Commissioner of Education, Washington.)
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Prof. T. M. ROTCH. (Boston.)
Hon. Wm. VANAMEE. (New York.)
MINISTER OF EDUCATION, Madrid.
MINISTER OF EDUCATION, Rome.

* PUBLICATIONS.

Transactions, Vol. I., and Parts I. and II. of Vol. II., being the Proceedings of the Society for the years 1901, 1902, and 1903. 80 pp., 72 pp., and 64 pp., 8vo. London, 1902, 1903, and 1904. *Price 2/6* each.

"Report on the Scientific Study of the Mental and Physical Conditions of Childhood; with particular reference to children of defective constitution, and with recommendations as to Education and Training; based upon the examination of 100,000 children seen 1888-94." 117 pp., 8vo. London, 1895. *Price 2/6.*

"Social and Moral Aspects of Education and Training of Poor Law Children," by FREDERICK HARSTON, Superintendent of Cottage Homes, Banstead. 23 pp., 8vo. London, 1899. *Price 2d.*

"Physiology for School Teachers," by C. S. SHERRINGTON, M.A., M.D., F.R.S. 15 pp., 8vo. London, 1901. *Price 6d.*

"Child Life in Japan," by Miss S. MIYAKAWA. 12 pp., 8vo. London, 1906. *Price 6d.*

AFFILIATED SOCIETIES.

KING ALFRED SCHOOL SOCIETY.

SCHOOL DENTISTS' SOCIETY.

* *These publications will in future be obtainable of the Child-Study Society London.*

THE OBJECTS OF THE SOCIETY.

To promote the study of educational methods and of the environment of children during school life, best suited to ensure the mental and physical development of normal children, as well as of those whose conditions are abnormal, or who are feebly gifted mentally.

To supply information and diffuse knowledge on points connected with the mental and physical status of children, by means of publications, lectures, &c.

To promote the training of teachers specially qualified to deal with such children; and assist by legislation, philanthropic efforts, or otherwise, the provision necessary for them.

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